

NOVEMBER 24, 1958

# PURCHASING

The Methods and News Magazine for Industrial Buyers

## The Big Job of the Small Purchasing Department

### Four Case Studies

Start on page 69

*"You don't need an empire  
for good materials management.  
The one-man  
department  
can carry out  
the concept."*

Macallen's Russ Allen



*"In the smaller company  
it's logical to stimulate  
close teamwork  
between purchasing  
& production control."*

Titeflex's Steve Sovis



*"Mechanized inventory control  
is something even the small  
department can  
use to cut costs,  
boost efficiency."*

Caloric's Charlie Kolkebeck



*"The small company P.A.  
can fashion his own tools  
to increase  
inventory  
turnover."*

American Rock Wool's Red Smith



A Conover-Mast Publication  
Seventy-Five Cents

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## **Famous escape artist meets his match**

**Y**OU KNOW synthetic rubber—in the products you use—for its healthy bounce, its stretch, or its spring. But the bales of uncured rubber with which industry works are another story.

Subject to a condition called "cold flow," during storage and shipment, the uncured product once was known as an incurable escape artist. It flowed, settled and burst from ordinary packages. Escaped rubber stuck to bits of cardboard, dirt and paper. Once contaminated, it was difficult to process into quality products.

Shell Chemical has solved this problem—by caging uncured synthetic rubber in a unique package called the Flotainer\*. Completely new in principle, Flotainer keeps rubber in check, prevents contamination, reduces waste, speeds handling and saves storage space.

The Flotainer is another way Shell's creative engineering cuts costs for both industry and the consumer.

\*If you are interested in a complete description of the Flotainer package, we will be glad to send an illustrated bulletin.  
"Flotainer" is a Shell Chemical Trademark.

### **Shell Chemical Corporation**

*Chemical Partner of Industry and Agriculture*

TORRANCE, CALIFORNIA

For More Information Write No. 151 on Inquiry Card—Page 32





**You can tell  
the **SKF** man  
by the length of his product line!**

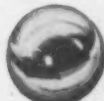
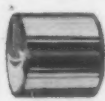
Fast deliveries of more than 3,000 basic sizes of ball and roller bearings—the most complete line available—are a specialty with the man from SKF.

Not only that. He's an experienced engi-

neer himself, backed by versatile application engineers and bearing designers—the kind who solve bearing problems quickly.

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*Spherical, Cylindrical, Ball, and **Tyson** Tapered Roller Bearings*

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SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.

\*REG. U.S. PAT. OFF.

# SPEEDI-DRI® SPOTLIGHT

... news about  
the world's first  
and most  
mineral  
floor absorbent

## Dustlessness of Sol-Speedi-Dri helps Miniature Precision Bearings, Inc. hold 0.0005" tolerance



Keene, N. H. firm—voted "Plant of the Year" in 1957—sparks production, keeps floors dry, clean and safe with Sol-Speedi-Dri.

The slightest amount of dust would seriously affect production tolerances at MPB—a firm that produces miniature bearings, some of which are so tiny that a thousand weigh only three ounces.

What you see on the floor around MPB's battery of automatic screw machines is a carpet of Sol-Speedi-Dri oil and grease absorbent. The biggest reason why it's there is because of its dustlessness when put down, and its resistance to breakdown in service.

Routine maintenance item? Not on your life! Teamed with the other innovational features at MPB, Sol-Speedi-Dri works 24 hours a day towards improved production... increased earnings.



### Thirstiest... and thriftiest, says MPB

In addition to dustlessness, MPB selects Sol-Speedi-Dri for other solid reasons: Soaks oil up off the floor and holds it—no "leaks," no slippery scum; most efficient volume-per-pound floor coverage; bag-after-bag, year-after-year uniformity; friend of safety engineer and production man alike.

Sol-Speedi-Dri has "101 Uses"... which is the title of our helpful bulletin. Use the coupon today for your copy—and for a generous sample.



SPEEDI-DRI DIVISION  
MINERALS & CHEMICALS  
CORPORATION OF AMERICA  
9186 Essex Turnpike, Menlo Park, N.J.

Please send me without obligation

☐ "101 USES" bulletin ☐ Generous sample

name \_\_\_\_\_

company \_\_\_\_\_

address \_\_\_\_\_

city \_\_\_\_\_ zone \_\_\_\_\_ state \_\_\_\_\_

## SOL-SPEEDI-DRI

... green-flecked to tell you  
you've bought the best



Speedi-Dri Division  
Minerals & Chemicals Corporation of America  
9186 Essex Turnpike, Menlo Park, N.J.  
Distributed in Canada by G. H. Wood & Co. Ltd., Toronto

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# SUCCESS STORIES

**B.F. Goodrich distributors helped these customers cut costs. Can they help you?**

## *Chips were down*

An Arkansas paper company used an ordinary rubber conveyor belt to carry wet pine chips to storage. But when the capacity of the chipper was increased by 20%, the belt couldn't carry chips away fast enough. Chips come from a wide elevator belt; loading is not always uniform. As a result, there would be such a build-up of chips they would sometimes tumble back down the elevator shaft.

The plant superintendent took his problem to a B.F. Goodrich distributor, who recommended a B.F. Goodrich "Riffle Grip" belt. It is made with rubber ridges in the cover, which hold the chips in place and, at the same time, channel water from the wet chips to the edges of the belt where it drains off. The B.F. Goodrich belt completely solved the problem, made possible higher belt speed and a 20% increase in production. It had been in use three years when the picture was taken, carrying 3½ million pounds of chips in an average day, looks good for two years more.

## *Survey saves \$2000*

B.F. Goodrich distributor in Chicago surveyed 40 V belt drives for a machinery manufacturer. Then he got the order by showing customer he could use fewer belts and save up to \$60 per set by switching to 40% stronger B.F. Goodrich high-capacity Grommet V belts.

## *Fish story*

A sardine cannery bought a 30-foot

length of 5-inch fish-handling hose from a B.F. Goodrich distributor in Portland, Maine. Commercial fishermen use this hose to convey fish from nets to boats—and, in port, from boats to canneries.

## *Boots cartons upstairs*

A New England manufacturer of boots and shoes wanted to convey 75-pound cartons up a 25-degree incline to a height of about 50 feet. But the special rough-surfaced conveyor belt they had, with cleats attached, couldn't carry the cartons fast enough. Two years ago, a B.F. Goodrich distributor suggested a B.F. Goodrich "Ribflex" package-handling belt. The Ribflex belt holds the cartons without cleats, speeds them up without a slip or slide. It has reduced handling costs, looks good for many years of service.

## *Easy-to-make bumpers*

An Oklahoma customer bought two sheets of one-inch metal-backed "Arm-orite", a kind of rubber usually used for chute linings, to be cut into pieces about 2 by 4 inches. Holes are countersunk and drilled, and the pieces are bolted to sliding doors to serve as bumpers.

## *Hot competition*

A lime manufacturer recently ordered its fourth B.F. Goodrich "Solarflex" hot-material conveyor belt. Solarflex has outlasted all other belts previously used, and the customer is now so sold on it that competitors are not even being asked to quote.

At another plant, an order for hot-material conveyor belting that was being placed with a competitor was given to a B.F. Goodrich distributor because the customer believed that the B.F. Goodrich Solarflex belt was worth the slight additional cost.

## *Air carriers*

A California contractor at work on a dam recently bought several different kinds of B.F. Goodrich air hose. The hose carries air for rock drilling and operating air winches in a tunnel. The B.F. Goodrich distributor reports that this is the most severe service possible and that the contractor had found through experience that B.F. Goodrich air hose lasts longer, needs less maintenance than other hose.

## *New product*

**Industrial Koroseal belt.** A conveyor belt made of Koroseal flexible material for heavy industrial use has been developed by B.F. Goodrich. It has high oil resistance, excellent cutting resistance. Cover is dense, nonporous, easy to clean. Recommended for metal-working plants where oily, greasy parts must be handled; in chemical plants handling wet, sticky materials; and in pulp mills, glass plants, plastic, textile and assembly plants where smooth, nonporous, nonmarking belts are needed.

## *New catalogs*

**Package conveyor belts.** Catalog No. 2550 illustrates and describes four conveyor belts designed to move packages and cartons up or down inclines. Explains construction features, gives recommendations on the type of belt to select for various package-handling jobs.

**Protective clothing.** 8-page illustrated Catalog No. 6300 presents the complete line of B.F. Goodrich work suits, raincoats, aprons, uniforms, and gloves. Describes features, sizes, weights. Includes selection charts and tables.

## *For more information*

For full information about any product on this page see your B.F. Goodrich distributor or write B.F. Goodrich Industrial Products Co., Dept. M-432, Akron 18, O.

Koroseal—T. M. Reg. U. S. Pat. Off.



*River of wood chips flow by on rubber—see "Chips were down"*

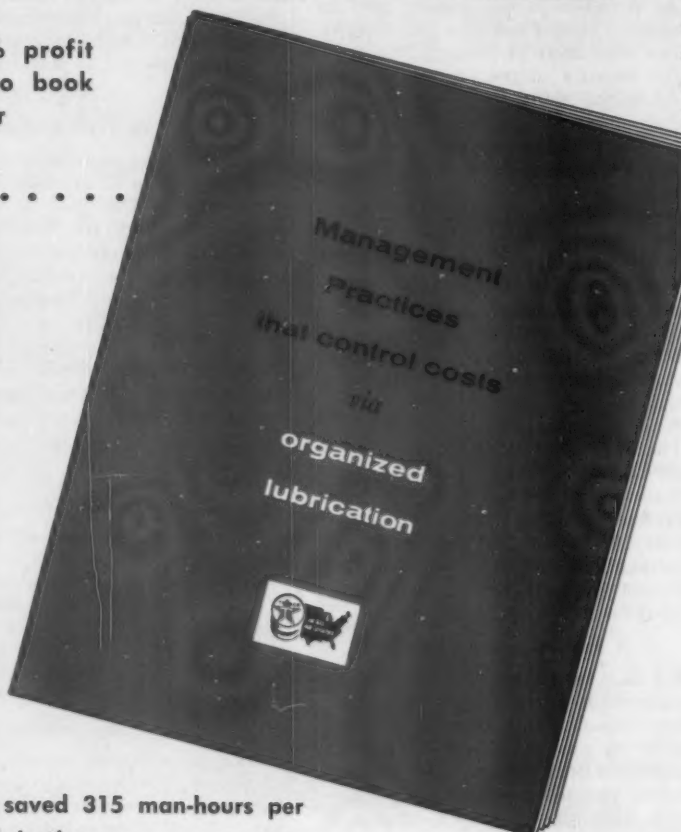
**B.F. Goodrich**  
**industrial**  
**rubber products**

# Neglected area of cost-control-opportunity uncovered by NEW BOOK

Guide to potential 4% profit increase makes Texaco book latest business best seller

**Why you need it:** The Texaco guide uncovers a new area where management can effect real economies in reduced maintenance costs. This is especially important now that decentralization and generally lower profit margins make the profit-and-loss statement the real measure of each plant unit's management efficiency.

**What it will tell you:** With facts like these, the Texaco guide shows that organized lubrication can raise production, extend parts life, and cut downtime:



★ A metalworking manufacturer saved 315 man-hours per month through more efficient lubrication.

★ A major corporation anticipates substantial maintenance savings through the services of a lubrication engineer.

★ A mill has increased bearing life from 16 to 72 shifts by instituting systematic lubrication that insures the right lubricant for each machine.

THE TEXAS COMPANY  
Dept. P-70  
135 East 42nd Street  
New York 17, N. Y.



Please send me *Management Practices that Control Costs via Organized Lubrication*.

Name \_\_\_\_\_

Title \_\_\_\_\_

**How it will help you:** Only organized lubrication gives management such an opportunity for savings. For example, a 10% reduction in maintenance costs through better lubrication methods will increase profits up to 4% in the average plant—more than equivalent to a 4% increase in sales. And Texaco's new guide shows how it may be done.

**How to get your copy:** Simply fill in the coupon, attach it to your letterhead, and mail it to The Texas Company, 135 East 42nd Street, New York 17, N. Y.

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# PURCHASING

The Methods and News Magazine For Industrial Buyers

NOVEMBER 24, 1958  
VOLUME 45, No. 11

B. P. MAST  
Chairman of the Board

B. P. MAST, JR.  
President

RAY RICHARDS  
Publisher

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Now from  
Goodyear—



## — the positive answer to the need for a quality tooth-meshed belt

Here is Goodyear quality in a transmission belt that opens the door to important advances in the design of machines and appliances.

For the Goodyear Positive Drive Belt was developed with the designer in mind — after careful study of his needs by the G.T.M. — Goodyear Technical Man. It makes possible important economies in weight, space and construction—on drives up to 600 h.p. and speeds to 16,000 f.p.m. And, most important, it's completely reliable—built to the notably higher standards of Goodyear quality.

Why not, then, ask the G.T.M. to drop by and give you complete specs on Goodyear Positive Drive Belts. He'll be glad to work with you in determining your best use of standard belts—or special sizes built to your requirements. Just contact him through your Goodyear Distributor—or by writing Goodyear, Industrial Products Division, Lincoln 2, Nebraska, or Akron 16, Ohio.

Goodyear Positive Drive Belts are manufactured under license and according to U.S. Patents 2,507,852 and 2,397,312.

POSITIVE DRIVE BELTS BY

# GOODYEAR

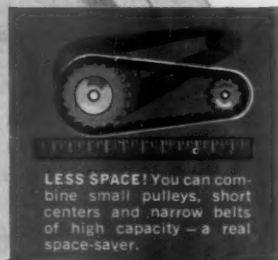
THE GREATEST NAME IN RUBBER

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PURCHASING



**LESS WEIGHT!** Pulleys can be light alloys—ideal for portable machines—aircraft components.



**LESS SPACE!** You can combine small pulleys, short centers and narrow belts of high capacity—a real space-saver.



**LESS MAINTENANCE!** Since there's no metal-to-metal contact, you can eliminate lubrication systems and devices.



**LESS NOISE!** In normal speed ranges, noise level is relatively low—no chatter or vibration, either.



**LESS HEAT!** Elimination of inherent friction—lack of high tension and thin belt construction bar heat build-up.



**LESS BEARING LOAD!** Since tooth grip—not tension—is important, bearing loads—and bearing needs—are appreciably reduced.

## Purchasing Previews

### Straws in the Trade Wind

► **FUEL PRICES STABLE**—Prices of industrial fuels will probably be maintained at current levels for the next few months, with no major changes in sight. The main reason: more than adequate supplies. Heavy oil prices seem to have levelled off for the time being, while natural gas producers are keeping their rates around the levels of earlier this year. There is a chance that coal prices will be hiked when a new labor contract is worked out. (The current agreement ends December 31.) Some sources have predicted that coal will be upped 25¢ a ton, however, the best bet now is that the price will not change until around April 1.

► **ELECTRICAL EQUIPMENT DISCOUNTS**—A price war is in progress in the heavy electrical equipment industry. Some items of heavy equipment, like switchgear and transformers, are being sold at prices between 10% and 50% below list. Public utility P.A.'s are most affected by the discounts, but industrial buyers also have an opportunity to take advantage of these cuts.

► **QUARTZ THREAD**—A thread made of pure quartz will be made available soon to purchasing agents. It will be used primarily

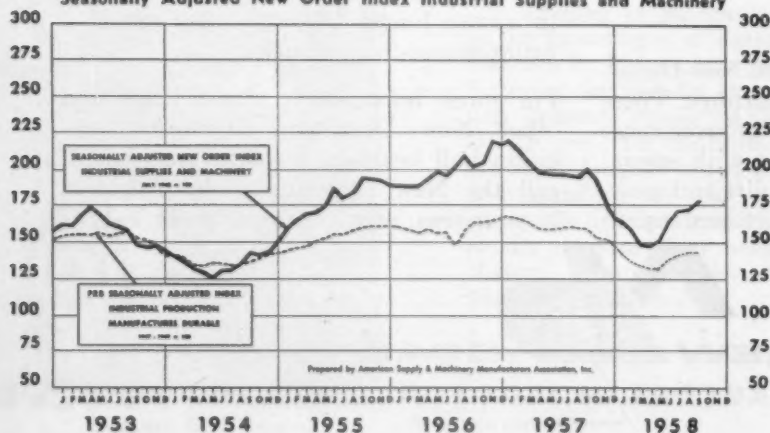
#### For the P.A.'s Hot File...

Industrial productivity is shooting up—and purchasing executives may be able to make better buys as a result. It now costs the average manufacturer less to produce an item than it did six or nine months ago. Output per man-hour has risen sharply in the recession year of 1958. But, and a mighty important but, prices have continued to rise. This is something you might keep in mind the next time you're involved in negotiation in-fighting.

in cloth form to reinforce plastic. Its outstanding attribute: resistance to heat. The thread has been tested at temperatures over 5000 degrees Fahrenheit—far above the melting point of woven glass, which has been often used to reinforce plastic. Because of its high cost, however, the new thread will be limited to uses where other materials have proven unsatisfactory. The price of quartz-reinforced plastic may run up to 40 or 50 times the price of glass-reinforced plastic.

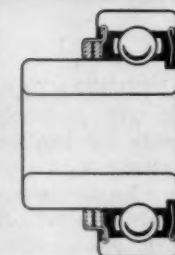
(TURN PAGE)

Seasonally Adjusted New Order Index Industrial Supplies and Machinery



Purchasing agents are continuing to increase their orders for industrial supplies and machinery. From American Supply and Machinery Manufacturers' Association reports its index is at 175 (July 1948 = 100), up 25 points from the recession low of May 1958.

## CASE HISTORIES



Light duty disc bearing with double felt-seal and shield has precision-ground, deep groove races for maximum load-carrying capacity under misaligning loads.

Photo: courtesy Oliver Corporation

### **N/D Sealed Ball Bearings End Dirt Contamination in Grain Drill Without Upping Cost!**

#### **CUSTOMER PROBLEM:**

Freezing bearings due to dirt contamination. Grain drill manufacturer calls for bearings that will solve problem, yet not increase over-all cost.

#### **SOLUTION:**

N/D Sales Engineer suggested New Departure Light Duty disc ball bearings. These precision bearings, with deep-grooved races for extra stability, are fitted with special double felt-seals to shut out dirt and wear. They not only solved the dirt contamina-

tion problem, but enabled the manufacturer to add new sales appeal to his product, with no increase in cost. With New Departure lubricated-for-life ball bearings, the discs remain fully adjusted to assure longer life and offer years of maintenance-free operation.

For more information about these and other New Departure production precision ball bearings for farm equipment, call the New Departure Sales Engineer in your area, or write Department V-11.

**N/D**  
**NEW DEPARTURE**

DIVISION OF GENERAL MOTORS, BRISTOL, CONN.

NOTHING ROLLS LIKE A BALL

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### Straws in the Trade Wind

► **NEW MANUFACTURING PROCESS**—A new production process—combining the advantages of investment casting with precision manufacturing—is now on the market. The name: Minicast. With this method, parts are first investment cast, then sized by a screw machine, cold heading, or other means.

► **COPPER STILL FIRING**—There's still no indication that the firming of copper prices is slowing down. Both producers and custom smelters report good demand from P.A.'s for the red metal. The supply will probably remain tight for the rest of this year at least.

► **THE VALUE OF COMMITTEES**—How many committees do you serve on at your company? The value analysis committee, the standardization committee, the new product development committee, and how many others? A report outlining the advantages and disadvantages of the committee system has been published by the National Industrial Conference Board. It describes possible activities of committees, along with their purposes, responsibilities, and authority.

► **CUTTING METAL EXPORTS**—The leading lead and zinc exporting nations have agreed "in principle" to a proposal for stabilizing world market prices. The method: a one-year cut in production and exports. However, a recent 26 nation conference was unable to come up with any concrete and workable decisions on implementing the plan.

► **THINGS ARE TOUGH ALL OVER**—So even the Cadillac salesmen may go on strike. It seems that New York City Cadillac salesmen are considering a strike for higher commissions. Their union head says earnings have slipped from an average of \$17,000 per year to \$9,000 in three years. In addition, he notes that owning a Cadillac is "practically indispensable" for the men who sell them.

► **CAPITAL GOODS SPENDING TO RISE**—1959 will bring a significant rise in capital goods spending. Some economic experts are predicting that machinery sales will be boosted sharply by next spring, and that new plant and equipment spending will be higher by summer. It's also expected that prices will continue to rise next year because of higher labor costs and a stronger market.



Clarence H. Thayer

### QUOTE! .....

A warning to purchasing agents to make full use of the advantages of automation has been issued by Clarence H. Thayer, vice president in charge of manufacturing for Sun Oil Company. "The age of automation demands broad talents and flexibility," asserts Mr. Thayer. "Yet the rigidities of custom and tradition are being fought for tooth and nail by those who lack understanding and interest." He says that the age of automation will require "almost constant changes in the physical plant needed to keep it competitive, changes in organization, personnel assignment, and working conditions."

# Look what paper is doing now:

- \* Precious moments in color
- \* Hi-Fi's pear-shaped tones
- \* Friendly bacteria

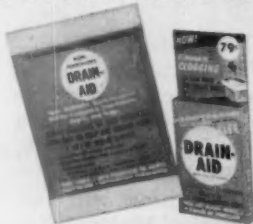
\* **Precious moments** recorded on color photographic film are preserved in paper photomounts. Made of a special Riegel heat-seal-coated paper that is strong and rigid, and die-cuts cleanly.

\* **Voice coils** for hi-fi speakers call for unusual precision in materials.



That's why James B. Lansing Sound chose a special Riegel insulating paper. Riegel's closely controlled strength, stability, moisture resistance and dielectric properties help preserve true pear-shaped tones.

\* **Now you can un-clog drains** with no splash or strain, thanks to Drain-Aid. It's a new bacteria-enzyme



formula, protected by Riegel's Pouchpak\*... a special pouch paper laminated to foil, then printed and polyethylene coated. A packaging idea here for your products? \*T.M.

\* **Paper made of glass or nylon**... paper that holds water but lets air pass... paper you can't tear... these are also examples of Riegel's ability to make paper for almost any industrial need. Whenever you have a paper problem, write to Riegel Paper Corp., P.O. Box 250, New York 16.

- \* One-shot razor handle
- \* Copper "glue" lines
- \* Little bag o' tokens

\* **"Little Shaver"**, ingenious one-shot safety razor, has to be strong enough for comfortable shaving, yet inexpensive because it is used once



and thrown away. R. R. Kellogg's designers chose Riegel's Weather-proof Bristol for the combination cover-handle. This high wet-strength paper easily withstood Kellogg's 15-hour hot water test.

\* **Copper for electronic printed circuits** is "glued" to a base by laminating with a special resin-impregnated Riegel paper. This paper gives a strong, high-dielectric bond, resistant to moisture and chemicals. It's just one of many examples of Riegel's ability to custom-make paper for industry.

\* **Now they're packaging subway tokens** in little paper pouches... on automatic machines. Philadelphia Transit Company's ingenious idea saves hours of hand labor, eliminates errors in token count.



They're using Riegel's poly-coated heat-seal Pouchpak\*, ideal for high-speed packaging. \*T.M.

Have you a problem that can be solved with better paper? Write today to Riegel Paper Corporation, P.O. Box 250, New York 16, N. Y.

- \* Keeps marble polished
- \* Stops radio rattle
- \* Guards frosting flavor

\* **Marble Halls:** Abrasive dust settling between the polished faces of marble slabs during shipment often



caused scratches. One quarry asked us to help solve the problem. We came up with a special soft, absorbent paper to slip between the marble surfaces. No more scratches.

\* **Sound effects are fine** when they're called for, but no self-respecting radio station likes to broadcast the crackle of turning pages of a script. Riegel has a special, porous, soft, low-density paper that is non-rattling, but easily printed. Announcers can't get rattled when they're reading from this super-quiet script.

\* **Frosting mix... easy to fix.** Pillsbury's new milk chocolate frosting mix is kept fresh and appetizing with



Riegel's Pouchpak\*... foil laminated to special pouch paper, poly-coated. Packaged at high speeds on automatic machines.

\* **Can one of our 600 different papers** solve a problem for you? Just write to Riegel Paper Corporation, P. O. Box 250, New York 16, N. Y. \*T.M.

Now...what can we do for you!

## Riegel

**TECHNICAL PAPERS FOR INDUSTRY**

For More Information Write No. 160 on Inquiry Card—Page 32

## How Small Company P.A.'s Gain Increased Recognition

The P. A.'s job in the small company is a tough one. And, in many cases, it doesn't get the recognition it deserves. Here are tested techniques used by other small company P. A.'s to boost their stature.

**I**N MANY small companies, the purchasing agent's job is a thankless one. Often these companies are dominated by one or two men who may be experts in sales or engineering but who rarely have any appreciation of the purchasing function. Although they don't know anything about purchasing, they never hesitate about getting into the act. Often they interfere with purchasing on key buys.

This is the kind of environment in which a minority of the respondents to this month's Purchasing Opinion survey have to work (see page 15). Fortunately, thanks both to their own efforts and the efforts of the National Association of Purchasing Agents, most small company P. A.'s are better off than this. Their managements give them the authority they need.

While many P. A.'s haven't yet secured the recognition they deserve, they have earned the respect and cooperation of their fellow executives. As a speaker at a Chicago purchasing workshop said: "The small company P. A. has generally learned that it is best to *command* not *demand* recognition."

### Better Men

One trend which has largely escaped notice, is the emergence of a new type of small company purchasing agent. He's just as conscientious and diligent as his predecessor. In addition, however, he has special qualities which make it possible for him to command a degree of recognition his predecessor could never attain.

The new-style small company P. A. is a college graduate in many cases. If he isn't, he has probably made up for this handicap by taking night courses in management, accounting, etc.

He has also broadened his knowledge of purchasing by reading about the subject, by taking part in N.A.P.A. educational programs, and by swapping ideas with fellow P. A.'s. In short, the new-style P. A. has made himself an expert in his field. Eventually his management becomes aware of this.

### Get Management Backing

One way many small company P. A.'s have used to speed the process of getting recognition is to write a purchasing manual. As one P. A. commented in replying to the Purchasing Opinion survey: "When I first thought about writing a purchasing manual, it seemed like a waste of time. I couldn't see any reason for going to the trouble of writing out all my



There is probably no easy way for the small company P. A. to get recognition.

# From Hunting to Hi-Fi . . .

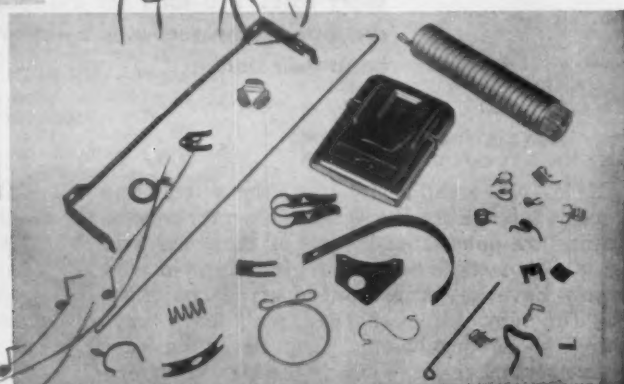
## There's a Spring in your Hobby



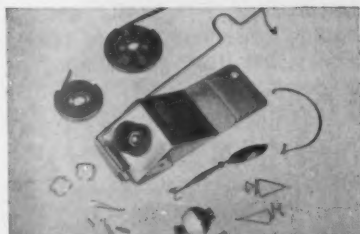
**HUNTING** — Ammunition clips, trigger springs and gun parts for civilian and military use; even a precision sling shot frame.



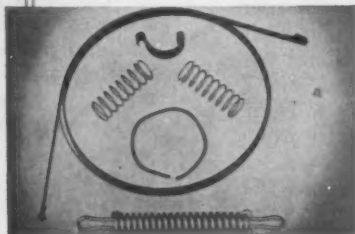
The booming market of hobbies and sports is typical of the far-reaching use of A.S.C. products. Often small but always important, springs make better products possible — and A.S.C. Divisions make better springs through constant research and experiment. Write for "The Picture Book of Springs."



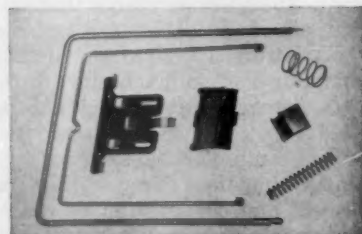
**MUSIC** — Coils and clips for radio, TV and record players; violin mute springs, guitar levers, springs for cornets, pianos, organs.



**FISHING** — power springs for reels; wire and flat springs for rod holders, lures; and a frog holder frame.



**BOATING** — starter springs and parts for outboard motors; shock-absorber spring for trailers; rope tightener spring.



**PHOTOGRAPHY** — view finder frames, shutter springs and stampings for movie and still cameras.



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5013 © 1956 ASSOCIATED SPRING CORPORATION

For More Information Write No. 161 on Inquiry Card—Page 32

### Special Industry Report:

policies and procedure. I knew what they were and so did my girl. If I had to train someone else, it would be easy enough to explain our operations."

Despite his misgivings, this purchasing executive decided to follow the advice of some of the P. A.'s in his local purchasing association. He went ahead with the manual in which he included not only all his procedures but also statements of purchasing policy. He naturally got management to read and approve the manual. In so doing he strengthened his own position in the company immensely. For the first time, his role as purchasing agent was clearly spelled out; there was no longer any confusion as to who was going to do the buying.

This wasn't the only benefit this P. A. derived from the manual, however. He gained in at least two other ways. First, in making up the manual, he naturally had to consult all interested departments to get agreement on procedures. This effort paid off later in increased understanding of purchasing problems by these departments. "I don't think some of them really knew what we were trying to do before we worked out this manual together," the P. A. recalls.

The process of making up the manual also helped improve purchasing procedures. In writing out procedures, the P. A. was forced to review them step-by-step. Several important improvements resulted.

#### **Sell, Sell, Sell**

"The P. A. has got to learn to sell just as hard as the salesmen who call on him," declared a man who should know—an ex-P. A. who is now a salesman. "The salesman is selling a product. The P. A. is selling himself—and that's tougher," he concluded.

Most smart P. A.'s regularly make use of another "soft sell" technique—the report to management. Purpose of the report is not just to give the P. A. a chance to blow his own horn. Its main function is to explain department activities to management and attempt to relate these activities to company operations as a whole.

For example, the report might project the effect of cost reductions or price changes on company profits for the coming year. But if specific cost reductions are mentioned, the smart P. A. always takes great pains to give more-than-due credit to others in the organization who also worked on these reductions.




The small company P. A. has to be a "jack-of-all-trades." He can't afford to hire specialists.

The new-style P. A. doesn't stop selling with his report to management. He is always selling both himself and the purchasing function to every other department. He tries to give each department head a little extra service to show that there's a lot more to purchasing than just paper pushing.


"Until quite recently, the head of our research department thought I was just a status-conscious bureaucrat. He thought my main interest was to make it hard for his engineers to see salesmen," an Indianapolis P. A. comments in the Purchasing Opinion survey. "Then I happened to run across a piece of duplicating equipment which I thought could be used in the research department. The department head liked the equipment and expressed amazement that purchasing would actually take the initiative in suggesting that we spend money to make an improvement. Ever since then, he has given us magnificent cooperation."

#### **Eyes and Ears Open**


This case illustrates the fact that the new-style small company P. A. does not limit himself to buying items that others request. Instead he plays a much more dynamic role; he regards himself as the company's eyes and ears to the outside world. He is actively searching for new equipment, processes, and ideas that will help his company do a better job.



People  
buy  
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Mr. Herbert J. Kreiling, Auditor, Scripps-Howard Pittsburgh Press, says:



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**Scott Tissue**

# PURCHASING OPINION

## Does the Small Company P.A. Receive the Recognition He Deserves?

In the giant corporation, it is quite easy to demonstrate how vital good purchasing is to the company's success. But is this also true in the smaller company? Is purchasing, relatively, able to make the same contribution to profit? Does management accord the small company P. A. the recognition he deserves? No one knows the answers to these questions better than the small company P. A. himself. Here are the views of a representative group of them.

1. Do you think purchasing in the small company can contribute, relatively, as much to profit as purchasing in the bigger company?

Yes  — 96%

No  — 4%

2. Do you think that, in general, the small company P. A. has received, relatively, as much recognition from his management as the P. A. in the bigger company?

Yes  — 33%

No  — 67%

3. Do you believe that purchasing in the smaller company is handicapped in its efforts to secure recognition because it has less bargaining power with suppliers than big corporation purchasing departments?

Yes  — 58%

No  — 42%

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- Wide and Narrow Band Saws
- Machine Knives  
ALL TYPES
- Circular Cutters  
ALL TYPES



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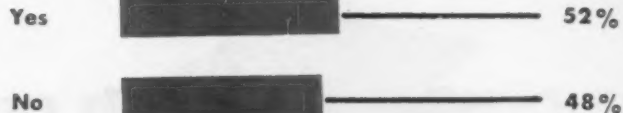
**SIMONDS  
SAW AND STEEL CO.**

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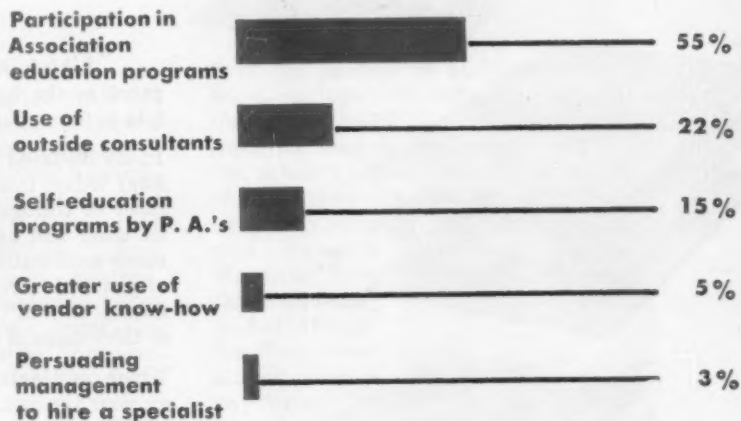
Factory Branches in Boston, Chicago, San Francisco and Portland, Oregon  
Canadian Factory in Montreal, Que., Simonds Divisions: Simonds Steel Mill,  
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Simonds Abrasive Co., Phila., Pa., and Arrida, Que., Canada

## Purchasing Opinion

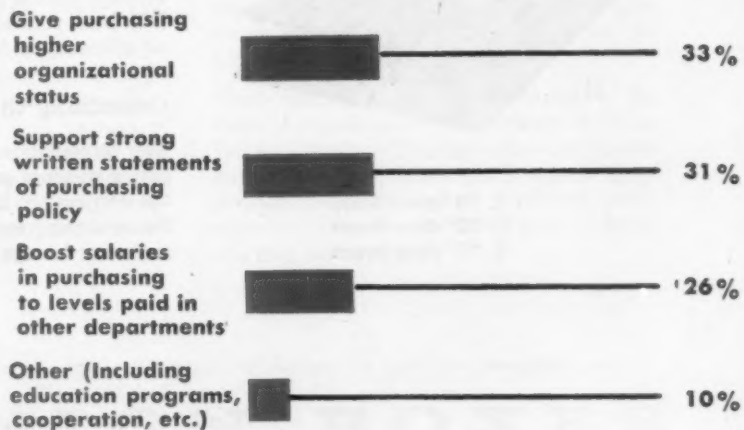
4. Do you think "back-door selling" is, in general, a greater problem in the smaller company than in the big corporation?



5. Big corporation purchasing departments enjoy the services of highly skilled specialists in value analysis, purchase law, etc. How do you think the small company purchasing department, which can't afford such specialists, can overcome this handicap?



6. What can management in the small company do to boost the efficiency of its purchasing department?



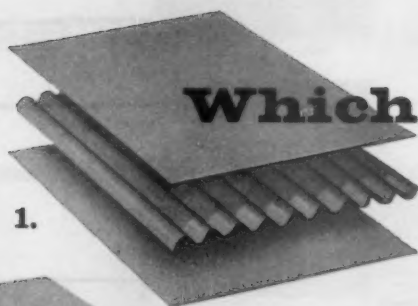
7. What would you suggest the small company P. A. do to improve his status?

Nearly a third of the respondents suggested frequent, well-written reports to managements. Also suggested frequently was that the P. A. should make a greater effort to broaden his knowledge of the company's products and processes. Greater efforts at self-education through courses in management and participation in N. A. P. A. activities were also recommended.

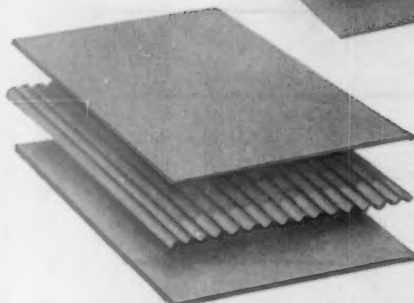
*What you should know about*

## Which combination for

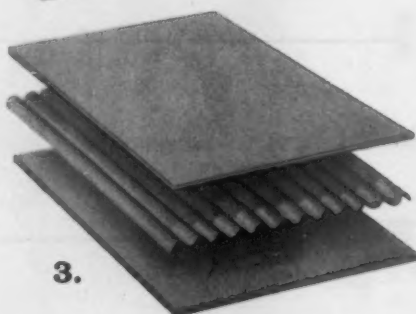
1.



2.



3.



1. "A"-flute board
2. "B"-flute board
3. "C"-flute board

**T**hink of the "sandwich" of corrugated as the built-up layers of board that fold to form your shipping container.

In double-faced board, its most widely used form today, this "sandwich" consists of one sheet of corrugated medium glued between an outer and an inner liner. But there are many combinations depending on the degree of protection required. Different types of flutes ("A", "B" and "C"). Different weights or thicknesses of liners.

Which combination to pick depends primarily on your product. For example, how large is it? How heavy . . . durable? How is it normally shipped?

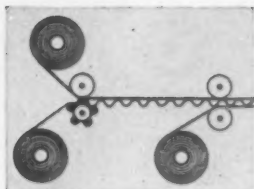
Union Box structural engineers will be glad to make such a product analysis for you and help plan your shipping container for greatest efficiency and economy.

### Combining the board

The combination determined, rolls of corrugating medium and linerboard are placed on the corrugator. Here, steel "teeth" form the flutes, arching each one uniformly. The inner and outer facings are then applied.

combined board for Union Boxes

## your corrugated box "sandwich"?



Board components

KEMKOR is a product of hardwood whose short, tough fibers combine remarkable rigidity with good load-bearing properties.

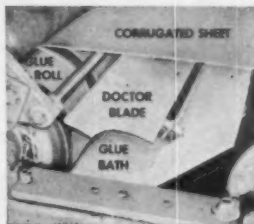
### Making it stick

Adhering the inner and outer facings to the flutes are critical sheetmaking operations. Pressures, for example, must be sufficiently heavy to insure a durable permanent bond. Not so heavy as to crush and weaken the structure.

Then there's the quantity of adhesive used. Not enough results in a defective, prone-to-peel-apart sheet. Too much causes a "washboard" appearance and means that in order to achieve good printing some crushing of the flutes will occur. This crushing, while not always apparent to the eye, does reduce the overall strength of the box.

For extra-durable cushioning, Union's KEMKOR corrugating medium, made by the semichemical process, is normally specified.

Even the amount of heat applied to the board can spell the difference between a strong "sandwich" and an unstable one. Adjusting heat to the gel-characteristics of the adhesive requires a fine balance. Too much heat prevents the glue from penetrating the board's fibers and causes a crystalline layer that breaks easily under stress. Insufficient heat allows the glue to "bite" but doesn't cook it enough to cause gellation and incomplete adhesion results. That's why it's essential that heat be accurately set for glue characteristics and machine speed as well as for the weight of board being run.



Glued for good

These controlled processes are typical of the detail that goes into every operation of Union Box manufacture. They save time and expense during handling, filling and loading. They provide the surest kind of protective insurance for your product and your overall shipping investment.



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Western Division—4545 W. Palmer, Chicago, Ill.

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how I'm cutting  
production costs ...  
the answer is**



Production costs are tough to control nowadays. But if you can get up to 100% more production out of the cutting tools you use . . . then you've got a real competitive edge.

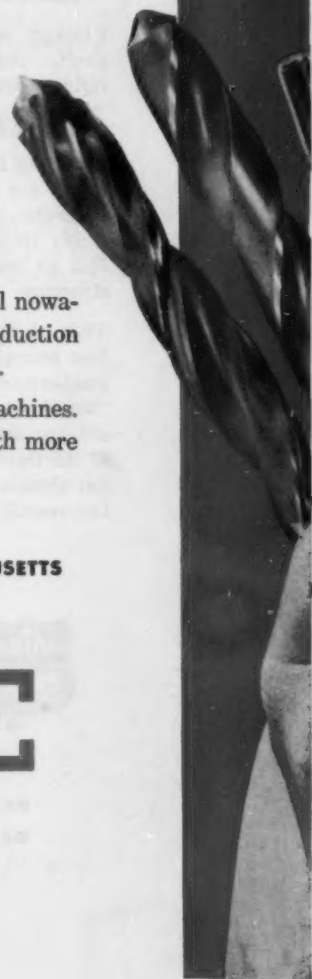
That's exactly what you can do, with Morse Electrolyzed Tools on your machines. Not only do you get more production, but you get it cleaner and faster with more closely held tolerances over a longer period of time.

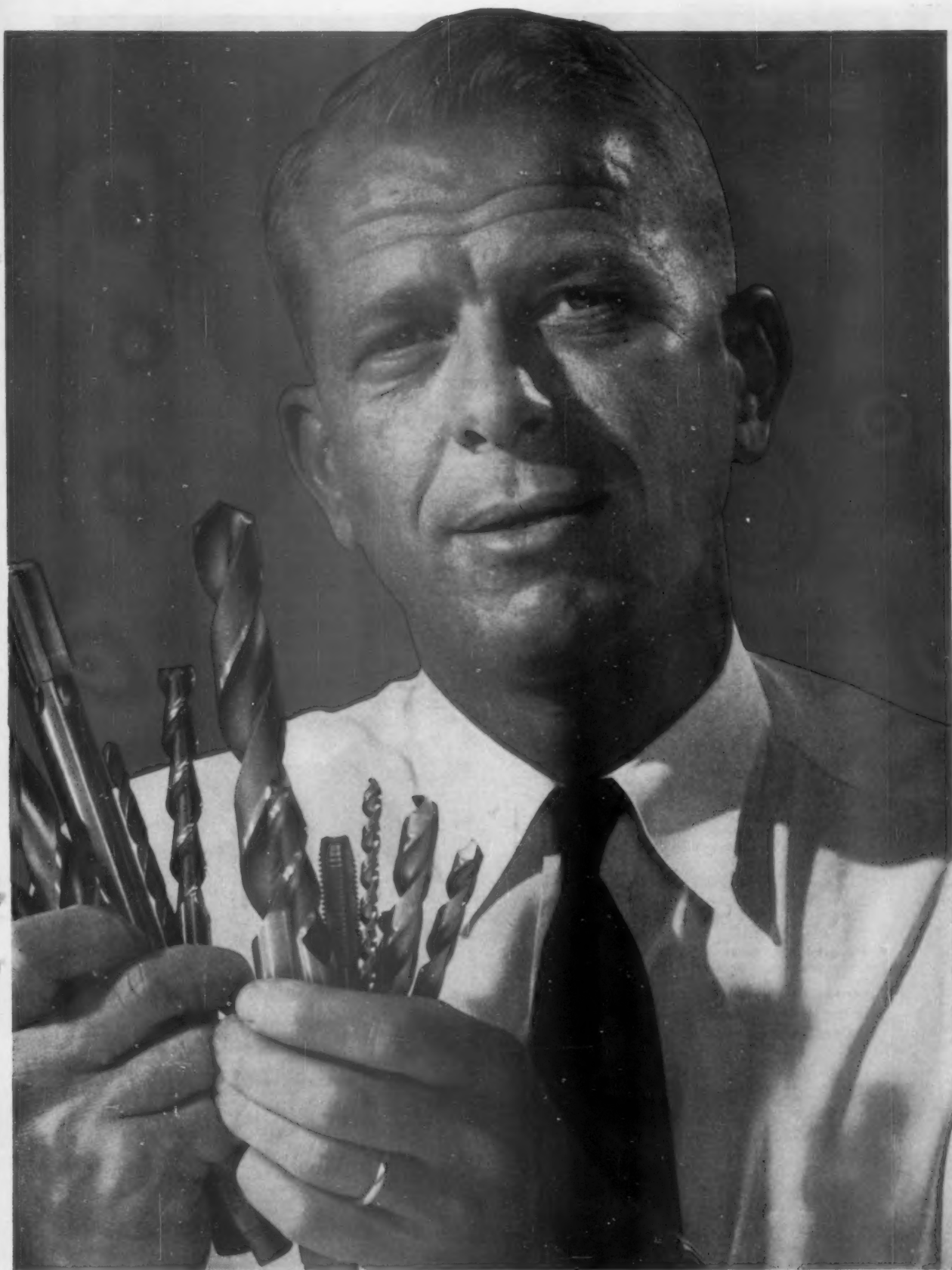
Another reason why . . . MORSE means "THE MOST" in cutting tools.

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**Cutting Tools**





NOVEMBER 24, 1958

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PURCHASING

# Washington Report

## ● Spending to be Curbed By Incoming Congress

**Editor's Note:** *How will the shift in Congress caused by the Democratic landslide affect P.A.'s? Will the "spenders" take over? Was the election a blank check for them to lead us on the road to inflation? What about material prices and wage trends? Here is a special analysis by PURCHASING Magazine's Washington Bureau, based on a survey of various government agencies.*

There is no clear line of economic change in the new Democratic Congress that will convene in January. The government will be too heavily involved in meeting the monthly revenue deficits to embark on new projects that will cost large sums of money.

The Treasury Department will have to be in the money markets constantly as a borrower—looking for long-term money, short-term cash, and even temporary borrowings. Under these conditions, the federal government will be so wrapped up in managing the anticipated \$12.2 billion deficit that new spending ventures will be strongly opposed.

Money controversies will begin early. The first will be over the fiscal 1960 budget. Government spending is running at the rate of \$80 billion a year—with a shade over half this sum for the military.

The government is collecting roughly \$67 billion. The difference between income and spending can only be made up through borrowing. Although government spending will not taper off considerably, income will probably improve.

### Tax Revenues To Rise

The government is getting more than half its money from individual income taxes—and incomes next year will be sharply up. Personal income remained high during the recession, but this was due in great part to the level of "transfer payments," including unemployment compensa-

tion and other similar federal aid measures.

Tax yields from these "transfer payments" are minimal. The outlook for next year is for a greater percentage of income derived from wages and profits. These, of course, offer a higher tax yield.

Roughly a quarter of the government's revenue this year will come from corporate income taxes. Next year that percentage will increase.

Excise and custom yields will not show spectacular dips in fiscal '59, so the tax increase in that area will be smaller.

### Supporting Minerals

Of direct interest to purchasing agents will be the approach by the new Congress to both imported and domestic metals and minerals.

Nonferrous prices (particularly copper) have rebounded from their lows. The copper price recovery was largely due to the recent strikes in Rhodesian and Canadian mines.

U. S. mines have stepped up their production, but the vital issue at stake concerns the marginal mines that have been shut down. A temporary improvement in price will not be sufficient incentive to start up marginal mines. What these producers need is a guaranteed market over a long period of operation.

A "liberal" Congress, as this one seems to be, will be more susceptible to pressure for support of domestic marginal mines. Also, the long-term position of the Democratic party has favored supporting the raw material economies of undeveloped countries. This, naturally, would presuppose some sort of price support or buying program.

Aid to "depressed areas" has already been put high on the agenda of the new Congress.

President Eisenhower vetoed the depressed areas bill enacted in the last Congress on the premise that it had a lot of give-away features.

The original idea of aid to depressed areas came from Dr.

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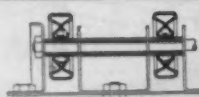
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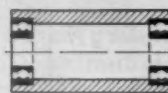
Cross member dividers on conveyor sections.



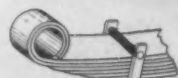
Motor mount bolt sleeve spacer.



Control rod spacers.



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## Washington Report

Arthur Burns, former economic advisor to President Eisenhower. The Administration sponsored a bill calling for a \$50 million loan fund to help depressed areas like Scranton and Wilkes-Barre, in Pennsylvania build new industries and create jobs.

Democratic leadership in Congress in the last session thought the Administration proposals were too modest. They proposed to throw a quarter of a billion dollars into the kitty to help depressed areas. In addition, they wanted federal funds to be used in rural areas that have had a tough time.

There is little question that with high priority going to this kind of aid, the new Congress will grind out an area bill. It is also clear that the Democrats might well override a Presidential veto. But it appears likely that the measure will be toned down somewhat from last year's version.

### Labor Legislation

On the labor front, the "liberal" 86th Congress will be more responsive to labor unions than the 85th Congress.

The Senate labor racketeering probe will most likely taper off. Whatever legislation is offered will be of a type generally acceptable to union leadership.

A friendly Congress will also encourage labor unions to push for higher wages, a shorter work week with the same pay, and improved fringe benefits.

Overall, while the newly elected legislators will talk of schemes that call for great spending, the harsh reality of a huge budget deficit will curb these enthusiasms.

This deficit holds a major threat of inflation. It will no doubt moderate any wholesale government support for big increases in either the wage or the price sector.

But at the same time, the strong shift to the Democrats will focus attention in Washington on the battle to hold off further measures that many think will endanger the nation's economic balance.—A. N. Weeksler

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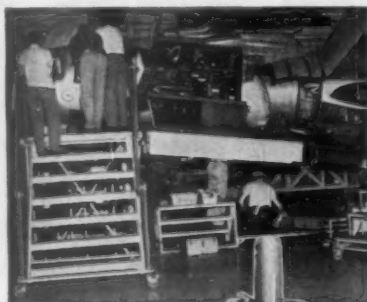
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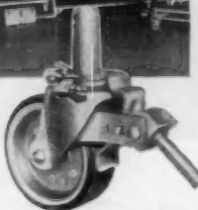


**FREIGHT HANDLING**  
Series 900 and 9700 Casters enable one man to handle complete loading job. Loading time has been cut in half and shipments go out more speedily.



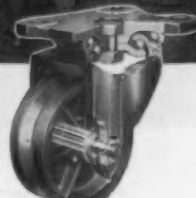
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Photographed by Robert Yarnall Richie

# *Really on the move*

Shipping that's going places! Every four minutes, night and day, a Railway Express truck enters or leaves this terminal. The new Railway Express trucks you see everywhere are part of the biggest new civilian truck order in history. And the largest, most modern truck fleet of any private carrier is only one feature of the Railway Express multimillion-dollar modernization program to insure you faster, more complete service.

Your shipment moves swiftly to almost anywhere in the world—with unified *one-carrier* responsibility all the way. You get door-to-door delivery at no extra charge within REA vehicle limits in the U.S.A. . . . and special low rates on many commodities. Next time you want safe, swift, sure shipping—call Railway Express!

shipping goes MODERN  
with

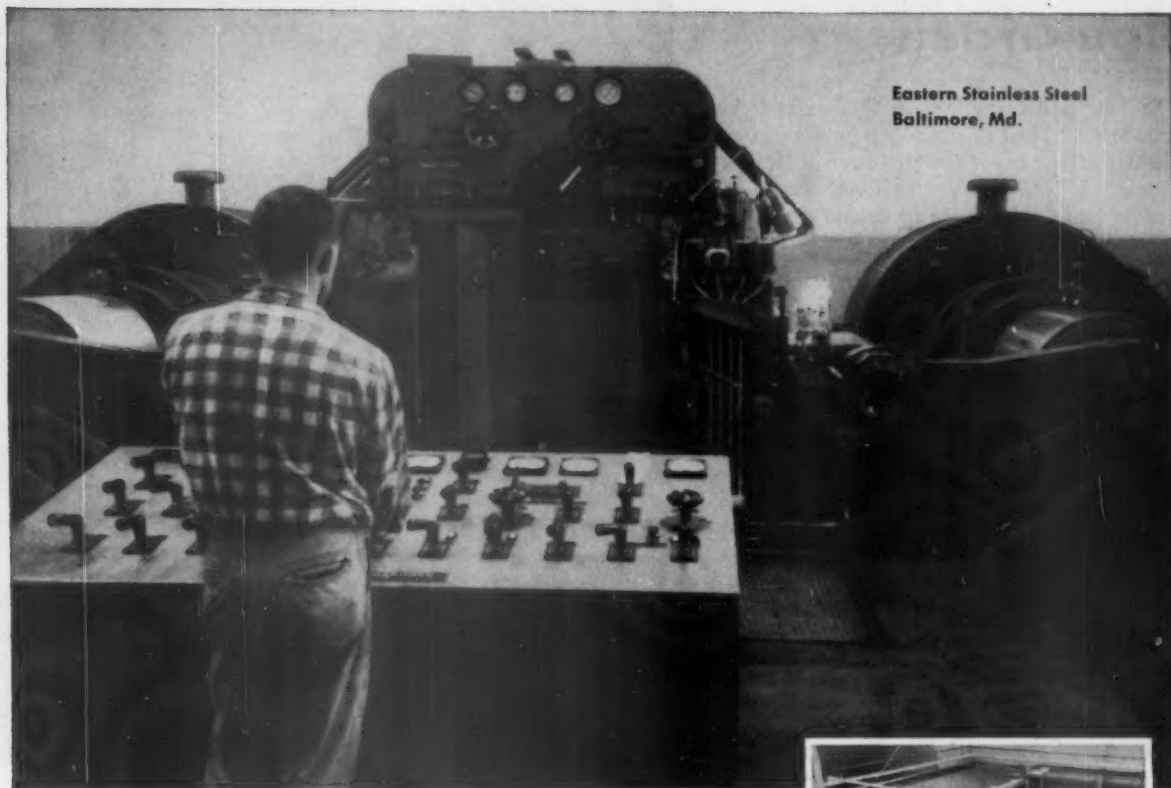


RAIL • AIR • SEA

For More Information Write No. 171 on Inquiry Card—Page 32

PURCHASING

# "We put Cities Service through the mill!"



In Eastern's Sendzimir mill, Cities Service Pacemaker Oil  
plays dual role—general lubricant and rolling oil

Long a major producer of flat rolled stainless steels, Eastern Stainless Steel recently took another step forward with the installation of a Sendzimir rolling mill.

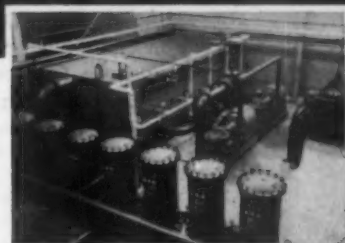
With this unusual mill, Eastern can roll 700 feet of steel per minute, up to 49 inches wide. What's more, a roll of steel can be reduced from  $\frac{1}{4}$ " thickness to .003" thickness!

Needless to say, the pressure and heat generated by this unusual machine create a formidable lubrication job—but it's all taken in stride by Cities Service Pacemaker "O" Oil. Eastern found this one lubricant can play a *dual role* . . . is ideal as a rolling oil and also for bearings and general lubrication.

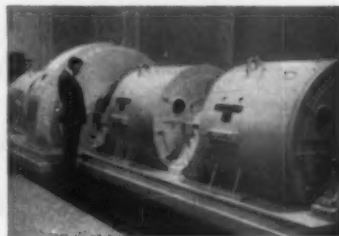
Pacemaker "O" qualifies for this

double role for these reasons: Fully fortified against oxidation, rust, and foaming it combines friction reducing properties with high rate of flow . . . is pumped at the rate of 1000 gallons per minute. "Thanks to this versatility and combination of desirable properties, we've found the oil highly satisfactory and helpful in overcoming some of our problems," says Eastern. "It is a fine lubricant."

If you're looking for lubrication that's more than merely adequate—the kind of lubrication that pays its own way in reduced downtime—get a free lubrication survey from a Cities Service Lubrication Engineer. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.



11 Oil Filters help assure purity of Cities Service Pacemaker Oil. Oil's excellent anti-rust, anti-foam properties plus rapid rate of flow make it ideal for rolls and general lubrication.



3750 H.P. Electric Motors develop the tremendous power required to drive Eastern's Sendzimir mill. Mill uses 35,000 gallons of Cities Service Pacemaker Oil, cooled by water drawn from pond outside.

**CITIES SERVICE**  
QUALITY PETROLEUM PRODUCTS

## Splices support All-Pro Tackle Lou Groza

The four corner splices in this extruded rubber windshield weather-strip produced by Ohio Rubber are strong enough to fully support 252-lb. All-Professional League Tackle Lou Groza of the Cleveland Browns, plus all his football gear.

Each of the four splices is a corner molded into an extruded weather-strip for perfect fit without tension. Neatness of splice, as well as strength, is an important factor because of the weather-strip's ultimate use in an automobile windshield assembly.

This ability to incorporate desired strength as well as neat appearance into splices is typical of ORCO's "customengineering" of parts made from rubber, synthetic rubber, silicone rubber, polyurethane and flexible vinyl, whether they be molded, extruded or bonded to metal or other material.

ORCO's integrated research, design, electronically controlled mixing and production facilities assure component uniformity and quality to meet the most exacting requirements. Why not check with ORCO engineers on your very next rubber or vinyl component problem and see for yourself how ORCO CUSTOMEERING can work to your greater advantage.



Send for  
free booklet  
"Component  
CUSTOMEERING  
rubber and vinyl parts".



*another example of* **ORCO**

# CUSTOMEERING



**THE OHIO RUBBER COMPANY**

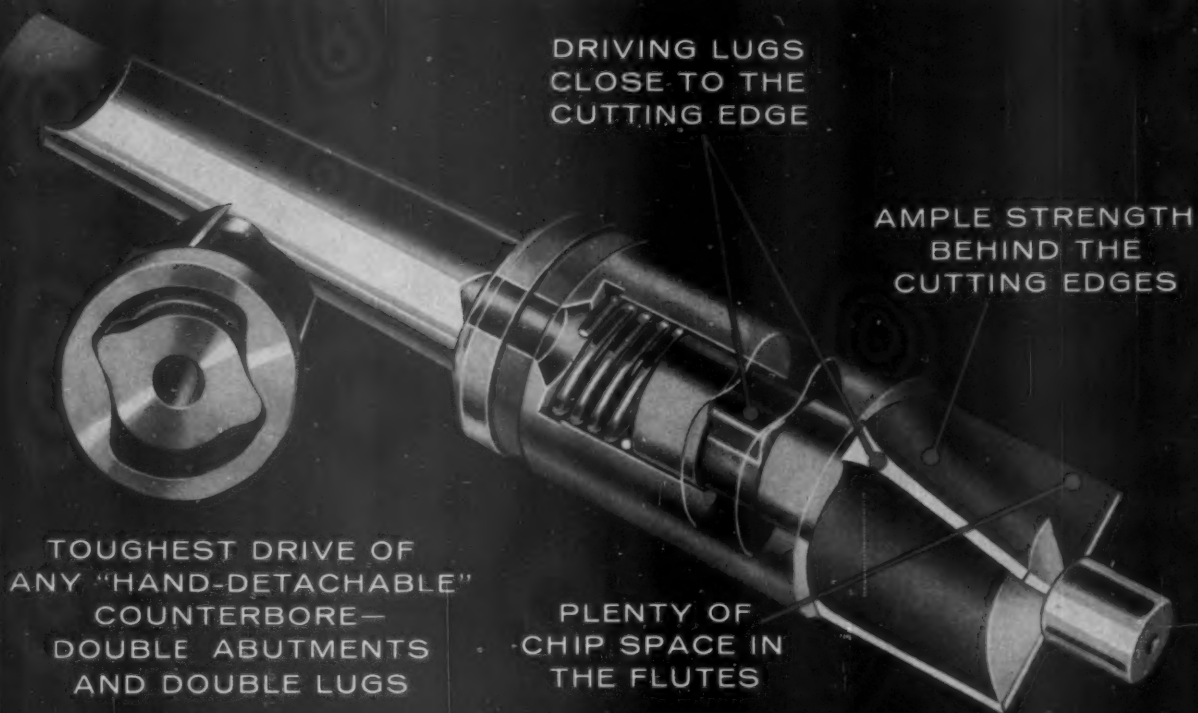
**WILLOUGHBY, OHIO**

A DIVISION OF THE EAGLE-PICHER COMPANY



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28

For More Information Write No. 174 on Inquiry Card—Page 32→  
PURCHASING



DRIVING LUGS  
CLOSE TO THE  
CUTTING EDGE

AMPLE STRENGTH  
BEHIND THE  
CUTTING EDGES

TOUGHEST DRIVE OF  
ANY "HAND-DETACHABLE"  
COUNTERBORE—  
DOUBLE ABUTMENTS  
AND DOUBLE LUGS

PLENTY OF  
CHIP SPACE IN  
THE FLUTES

## Here's why Continental Counterbores last longer



A quarter-turn by hand engages or releases a Continental Counterbore. This Standard Drive is also used for Continental spotfacers, countersinks, inverted cutters and special end-cutting tools.

58-48

Quality material and care in manufacture are two good reasons why Continental Counterbores last longer. Another reason is design.

Because of the way double driving lugs on the cutter shank engage abutments in the holder socket, driving forces simply create compression, not shearing or wedging action. The result is a balanced, positive drive—the toughest drive of any "hand-detachable" counterbore.

Notice how close the drive lugs are to the seating shoulder of the cutter. They're designed that way to give the extra torsional rigidity needed to resist machining forces. Flute design provides ample area for smooth chip flow, easy cutting.

And, of course, no matter how heavy the cut, a Continental Counterbore will always disengage with just a twist of the wrist.

Write direct, or ask your Ex-Cell-O Representative for a free copy of a new booklet that lists standard Counterbore sizes and tells everything you'll want to know about these versatile tools.

**Continental**  **TOOL WORKS**

DIVISION OF EX-CELL-O CORPORATION, DETROIT 32, MICHIGAN

Metallurgical Memo from General Electric



## G-E man-made industrial diamonds improve on nature's best

They out-perform natural bort an average of 35% in carbide grinding  
... industry no longer has to depend on nature's supply of diamonds

Now, no need to rely on one source for diamonds. More and more actual production experience is proving that grinding wheels containing General Electric Man-Made diamonds actually *out-perform* natural bort. And your grinding wheel suppliers are offering them now!

Here's what this means to you: You'll get wheels with the *uniform* quality of General Electric Man-Made diamonds — wheels that give consistent results in production use. Wheels containing General Electric Man-Made diamonds maintain sharper cutting edges, cut more freely. They remove more carbide with less wheel wear and with 20-35% less power

consumption. Competitively priced, they'll deliver a production bonus averaging 35% — give you surface finishes that equal or exceed those obtained with natural diamonds. And because they're manufactured, your grinding wheel manufacturer is assured of a *continuing* supply of General Electric Man-Made diamonds resulting in lower inventories of diamond wheels for you.

Be sure you cash in on these advantages by specifying wheels made with General Electric Man-Made diamonds in *your* next order. Get them from your regular diamond wheel supplier. *Metallurgical Products Dept., 11143 E. 8 Mile Road, Detroit 32, Mich.*

METALLURGICAL PRODUCTS DEPARTMENT

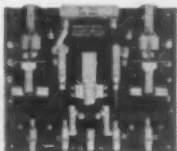
GENERAL  ELECTRIC

CARBOLLOY® CEMENTED CARBIDES • MAN-MADE DIAMONDS • MAGNETIC MATERIALS • THERMISTORS • THYRISTORS • VACUUM-MELTED ALLOYS

For More Information Write No. 175 on Inquiry Card—Page 32

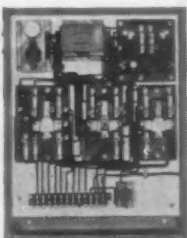
# ASCO the one source for every EMERGENCY ELECTRICAL CONTROL

## EMERGENCY SIDE



**DEMAND START PANEL**

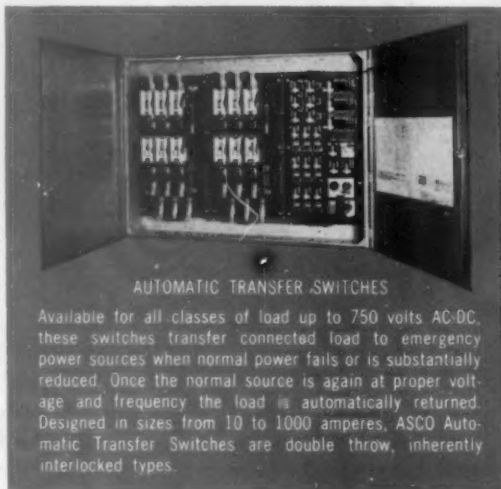
Designed to start engine automatically when any load is applied and to automatically stop engine when all load is removed. Has built-in device that automatically holds off load until voltage and frequency are at proper ratings.



**ENGINE STARTING PANEL**

Initiates cranking of electrical plant upon normal source failure. Panel relays operate a "pump closing" solenoid to stop the plant upon restoration of normal voltage. Available for both diesel and gasoline engines, designed to your specifications.

The Automatic Switch Company designs and manufactures *all* electromagnetic control equipment for standby emergency power installations. Dependable ASCO equipment serves hospitals, hotels, television studios, mines, railroad and subway generating stations — wherever continuity of light and power is a necessity. And ASCO equipment is of particular importance in microwave installations and for restaurants and toll booths on new super highways.



**AUTOMATIC TRANSFER SWITCHES**

Available for all classes of load up to 750 volts AC/DC, these switches transfer connected load to emergency power sources when normal power fails or is substantially reduced. Once the normal source is again at proper voltage and frequency the load is automatically returned. Designed in sizes from 10 to 1000 amperes, ASCO Automatic Transfer Switches are double throw, inherently interlocked types.

## NORMAL SIDE

### TIME DELAY RELAYS



Supplied as "built-in" components of automatic transfer switches, these relays cause the switch to ignore harmless power dips and outages, protecting the generator from false starts. They permit transfer of load to emergency only if outage is sustained. Also available as a unit.



### CLOSE DIFFERENTIAL RELAYS

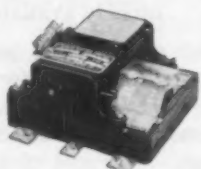
These relays provide "adequate-voltage" power (overvoltage and undervoltage protection). They cause the transfer switch to transfer the load to emergency on a 5% differential in power supply voltage or less if required. Also available for close differential frequency control.



### BATTERY CHARGER

Operating from the normal supply, this charger keeps electric plant starting batteries charged, ready for engine starting. Can supply trickle or high rate charge.

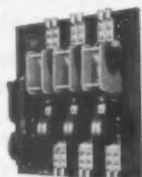
## LOAD SIDE



**BULLETIN 920**

Remote control switches are used to disconnect distribution circuits. U.L. approved to 600 volts AC, 250 volts DC, ASCO has a complete line of RC's from 10 to 1000 amperes. This one is rated for loads up to 200 amperes.

### REMOTE CONTROL SWITCHES



**BULLETIN 911**

For higher amperage, this remote control switch may be used for all classes of load, 600 volts AC, 250 volts DC maximum. It is available in 2-pole, 3-pole and 4-pole types and is rated up to 1000 amperes.

Write us for more detailed information on ASCO electromagnetic control equipment for emergency standby power: Catalog 57-S1 covers automatic transfer switches; 57-S8 electric plant controls. Available to those requesting same on company letterhead.

# ASCO

**Automatic Switch Co.**

52-J Hanover Road, Florham Park, New Jersey  
FRONTIER 7-4600

IT PAYS TO STANDARDIZE ON



## Stanscrew service helps insure quality for new Tuthill pump

Marvin Williams, Works Manager, Tuthill Pump Company, says: "Dependable, precision-built fasteners are an essential ingredient of the quality we build into Tuthill Pumps.

"Therefore, when we designed our new series of high pressure Powermax pumps, we had our distributor arrange for a visit from Stanscrew's fastener specialist. The socket head cap screws he recommended for this demanding application met the stringent standards we have established. And because of our years of experience with Stanscrew, we know we can count on precise product uniformity and fast service."

Hundreds of other leading companies in

American industry have also learned that it pays to standardize on Stanscrew. For Stanscrew offers a comprehensive line of over 4,000 different types and sizes of standard fasteners . . . including a complete selection of socket, set, and cap screws. These are produced in three modern plants by fastener specialists with over 85 years of specialized experience. All 4,000 items are always in stock . . . quickly available.

*When you have a fastener problem, call your Stanscrew distributor. He will arrange for a prompt visit from the Stanscrew fastener specialist. The specific recommendations he will make can often mean important savings.*



## FASTENERS

**CHICAGO** | THE CHICAGO SCREW COMPANY, BELLWOOD, ILLINOIS

**HMS** | HARTFORD MACHINE SCREW COMPANY, HARTFORD, CONNECTICUT

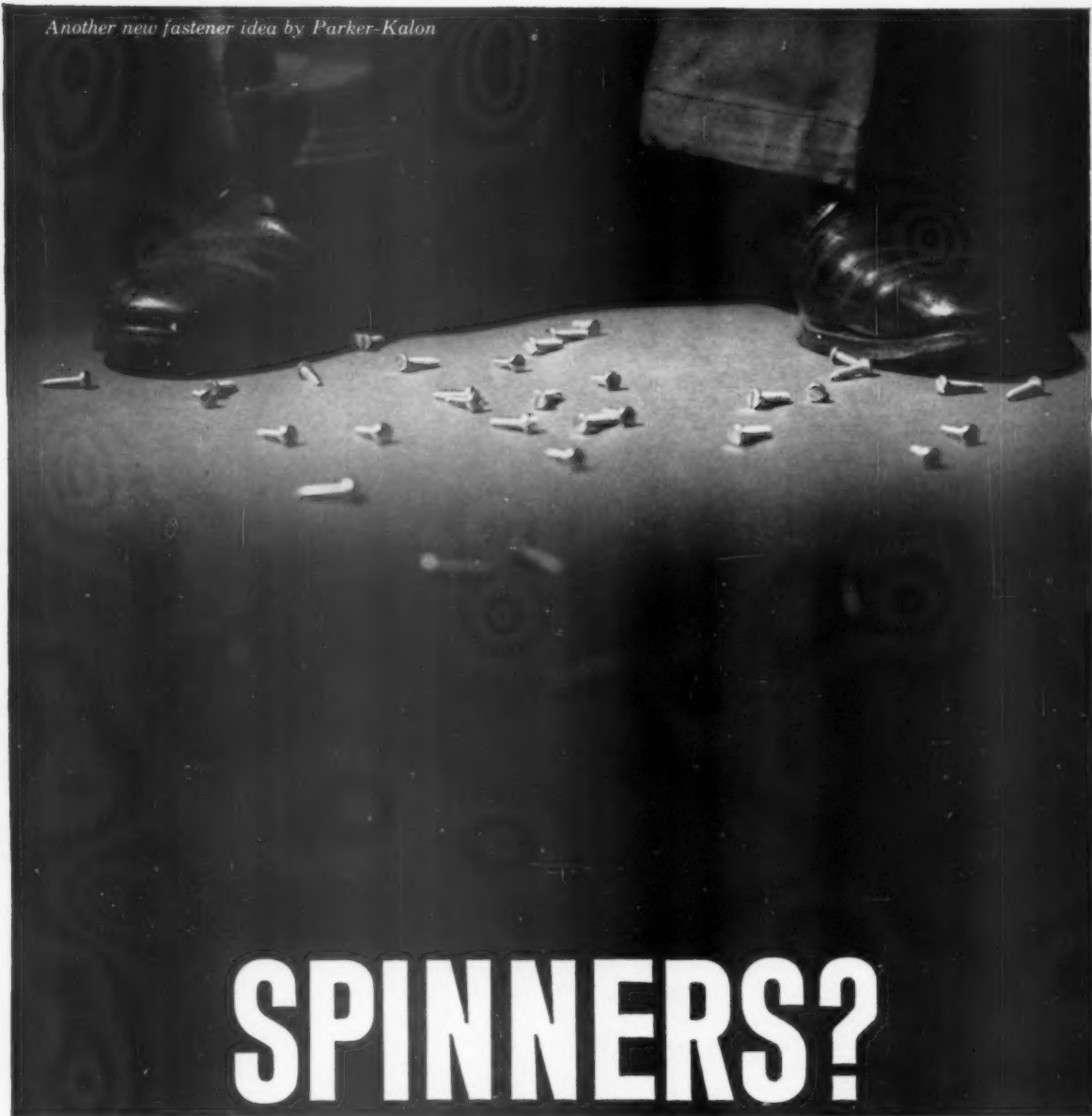
**WESTERN** | THE WESTERN AUTOMATIC MACHINE SCREW COMPANY, ELYRIA, OHIO

**STANDARD SCREW COMPANY** 2701 Washington Boulevard, Bellwood, Illinois

For More Information Write No. 177 on Inquiry Card—Page 32

PURCHASING

Another new fastener idea by Parker-Kalon



# SPINNERS?

Screws on the floor mean trouble at your door! Ordinary fasteners when used in the assembly of thin gage metal sheets, often spin or slip—result in work stoppages, salvaging operations, higher production costs.

Now you can substantially reduce waste motion, rejects and lost time, with Parker-Kalon's new "Hi-thred" Self-tapping Screw . . . the new fastener that grips securely without spinning or slipping . . . even in very thin gage metal sheets.

Developed by P-K's research team, the revolutionary "Hi-thred" is THREADED FULL TO THE HEAD—WITH THE LAST THREAD ACTUALLY TERMINATING IN AN ANNULAR ORIFICE IN THE HEAD ITSELF!

For samples, see your nearby Industrial Distributor. "Hi-thred" fasteners are available in production quantities at no increase in price in Types "A" and "Z" in non-countersunk head styles, in either Slotted or Phillips Recessed Heads.



## PARKER-KALON® "Hi-thred"

### Self-tapping Screws

Pat. Pending

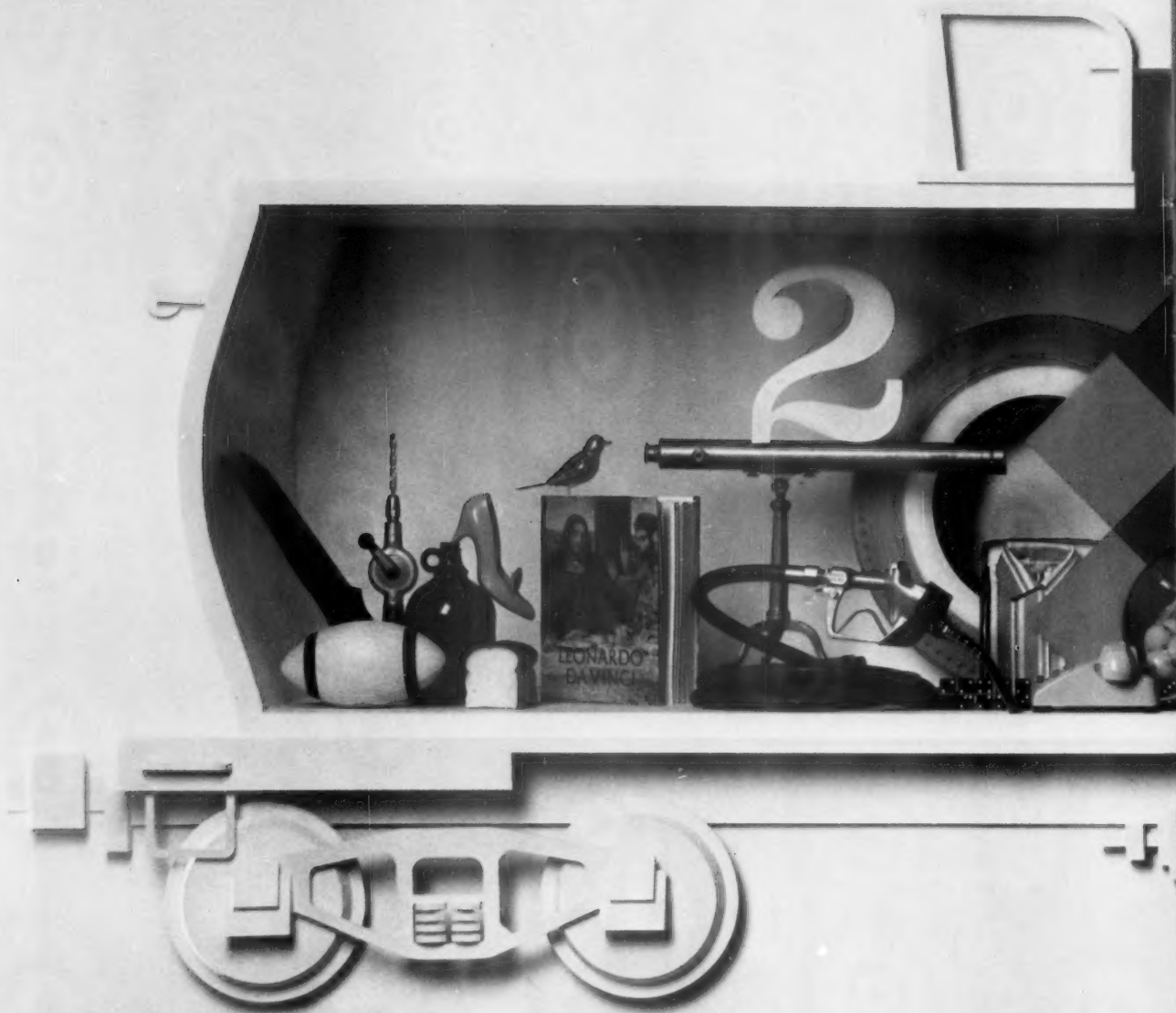


Sold everywhere through leading Industrial Supply Distributors

PARKER-KALON DIVISION, General American Transportation Corporation, Clifton, New Jersey

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NOVEMBER 24, 1958

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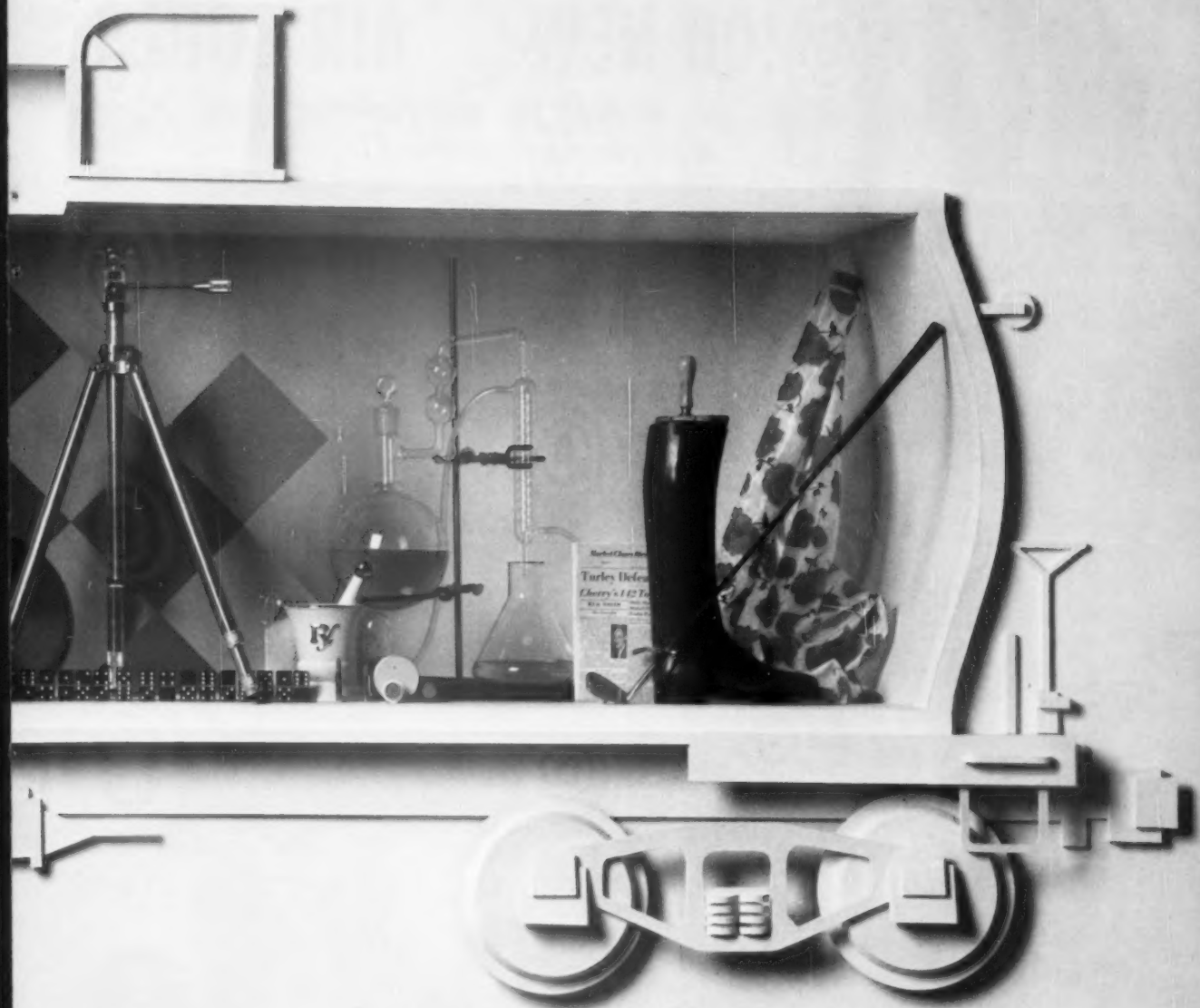
## COLUMBIA-SOUTHERN CHEMICALS CREATE

SALES MAKE MORE PROFITS when they're balanced carefully against product development, processing, and marketing costs. That's the big reason you look so closely at the total "package" you get when you buy such essential materials as chemicals.

Naturally, you start with dependably high-purity basic materials. You require on-schedule delivery, geared to your specific handling and use. Perhaps most of all, you want the kind of practical, market-

conscious technical assistance that helps open new fields for your present or contemplated products. In brief, you need a chemical partner, not simply a supplier. So hard to locate? Not at all. Naturally, you're thinking of:

Columbia-Southern Chemical Corporation, One Gateway Center, Pittsburgh 22, Pennsylvania. Offices in fourteen principal cities. In Canada: Standard Chemical Limited.



## PROFITABLE SALES FOR YOUR PRODUCTS

CHLORINE regroups molecules for economical processing of plastics, solvents, paper products, wonder drugs, hundreds of products.



CAUSTIC SODA and its voracious appetite work thriftily to produce textiles, packaging films, petroleum products, innumerable goods.



SODA ASH is indispensable to the manufacture of glass, soaps and detergents, metals, pigments, other chemicals.



RUBBER PIGMENTS improve natural and synthetic stocks, make possible use of sales-spurring colors in quality rubber goods.



### COLUMBIA-SOUTHERN CHEMICAL CORPORATION

A Subsidiary of Pittsburgh Plate Glass Company

Anhydrous Ammonia, Benzene Hexachloride, Calcium Chloride, Calcium Hypochlorite (Pittchlor®, Pittabs®), Carbon Tetrachloride, Caustic Potash, Caustic Soda, Chlorine, Chlorinated Benzenes, Chloro-IPC, Chrome Chemicals, Hydrogen Peroxide, Muriatic Acid, Pacific Crystals, Perchloroethylene, Rubber Pigments (Calcene®, Hi-Sil®, Silene®), Soda Ash, Soda Briquettes, Sodium Bicarbonate, Sodium Sulfate, Titanium Tetrachloride, Trichlorethylene

# NOW 200 NEW AIR TOOLS

*to help you cut fastener costs  
and increase output!*

## assembly machines



The ultimate in fastener and assembly efficiency—whether it's to automate a single nut running operation or a complete assembly line.

Screw driver with automatic feed for one or more screws—readily adjustable for various screw spacings.

## screw drivers

More than 94 new sizes and models featuring instant push button reverse, renewable trigger bushing, wider operating range, more power and more accurate control.



Self-sealing rubber faced throttle valve simplifies maintenance.

## ratchet wrenches

Designed for close quarter nut running, these wrenches combine the powerful "Multi-Vane" air motor with a simple, efficient ratcheting mechanism.



Like all I-R ratchet wrenches, Model D011W can be used for removing nuts, by simply turning tool over.

## angle wrenches (torque control)



Adoption of these new Torque Control Angle Wrenches expands I-R's line, making it the most complete on the market. Unique feature is automatic torque control valve which shuts off air to the motor when nut is run to pre-determined torque.

Built in torque control is a feature of this I-R size 3/8PT. Torque ratings range from 5 to 100 ft. lbs.

## impacttools (torque control)

Revolutionary new Torsion Bar Torque Control provides control never before possible. Basic principle is I-R's time-tested, exclusive ball and cam impact mechanism.



Speed and flexibility of famous I-R Impacttool is combined with maximum torque control in this Model 5040T.

Easiest way for you to cut production costs and increase man-hour output is with new, more efficient air tools. Tools shown here are representative of the more than 200 new, more productive tools added to the I-R line in the past two years. Power increases ranging up to 75% help to cut costs on fastening operations.

For detailed information about the complete I-R line of cost-cutting Air Tools—call or write your nearby I-R office.

8-880



# Ingersoll-Rand

Tools plus AIRengineering  
increase output per man

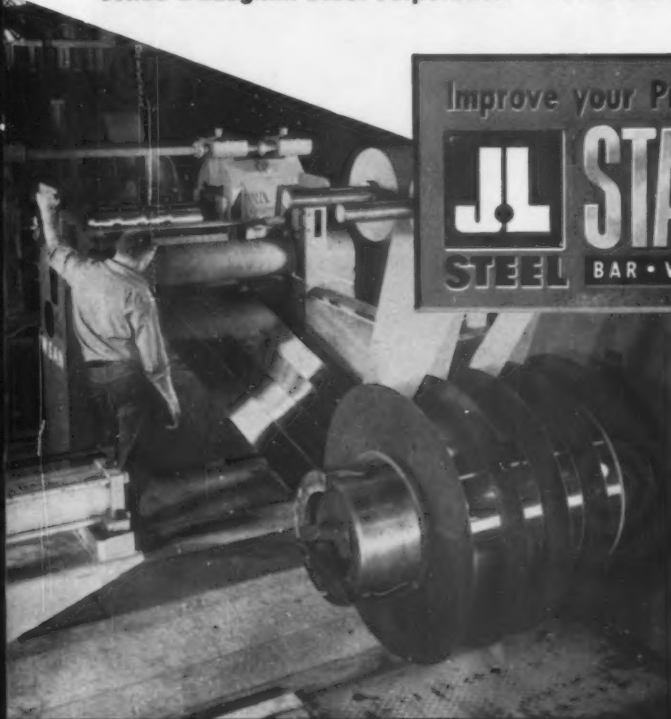
# A PREVIEW

## OF A NEW SOURCE OF QUALITY STAINLESS SHEET & STRIP

Steel buyers everywhere will welcome J & L's new source of constant high quality stainless sheet and strip. The completely new stainless mill, located at Louisville, Ohio, has successfully passed through its shake-down runs and is now ready for full capacity production.

With the completion of this integrated cold rolling operation, J & L is equipped with the finest facilities in the industry to produce stainless steel strip and sheets to extremely close tolerances in widths up to 48 inches. Write for your copy of J & L's Sheet and Strip Manual today.

**Jones & Laughlin Steel Corporation • STAINLESS and STRIP DIVISION • Box 4606, Detroit 34**



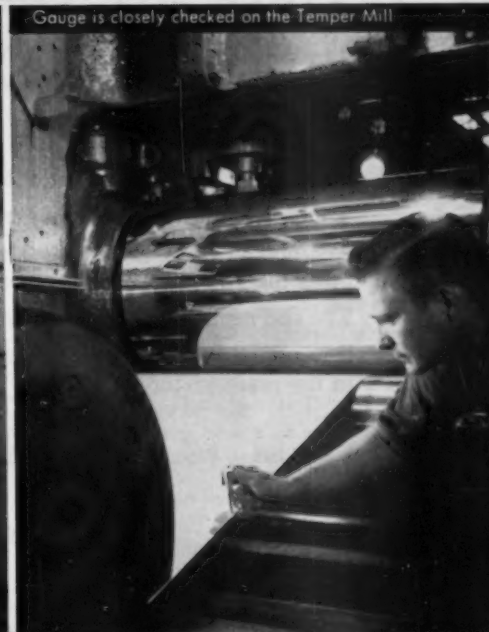
The 50" Slitter cutting stainless coil into strip



Mechanism as precise as a time piece operates the new Sendzimir Mill



Discharge end of the cold roll anneal and pickle line



Gauge is closely checked on the Temper Mill



## "Here are the Reasons why I've come **BACK TO BRASS**"...

"Brass can be run at higher speeds on automatics.

Tool life is much longer with Brass, less down time.

My operators would rather run free-cutting Brass than any other metal.

The end result is a better product, more satisfied customers.

Scrap return value on free-cutting Brass is very often a key factor in the profit picture."

Open up a new profit picture *for yourself* with the traditional quality of Bristol Brass, Bristol service and delivery. Write, wire or phone:

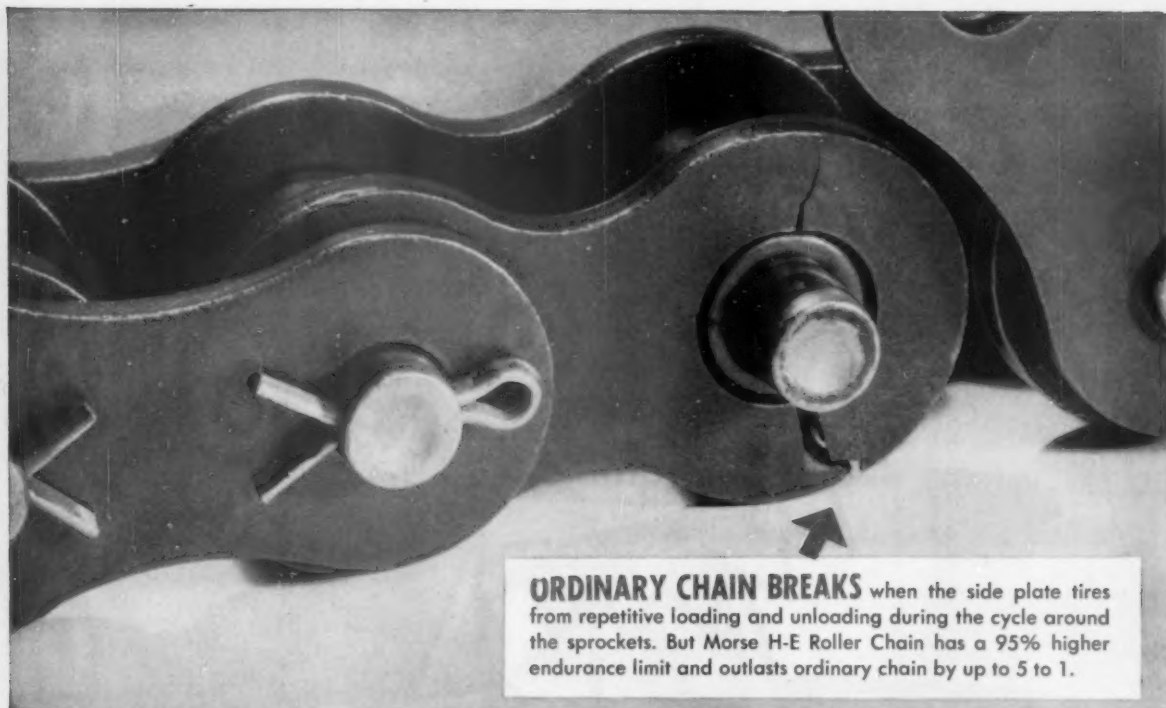
### **THE BRISTOL BRASS Corporation**

SINCE 1850,  
MAKERS OF BRASS STRIP,  
ROD AND WIRE IN  
BRISTOL, CONNECTICUT

*Bristol Brass has offices and warehouses  
in Boston, Buffalo,  
Chicago, Cleveland, Dayton, Detroit,  
Milwaukee, New York, Philadelphia,  
Pittsburgh, Rochester, Syracuse.*

*and for BRASS FORGINGS, too . . .  
ACCURATE BRASS CORP.  
(Subsidiary of The Bristol Brass Corp.)  
Bristol, Connecticut*

For More Information Write No. 182 on Inquiry Card—Page 32



## "Tired Metal"... the bane of chain now licked by MORSE H-E

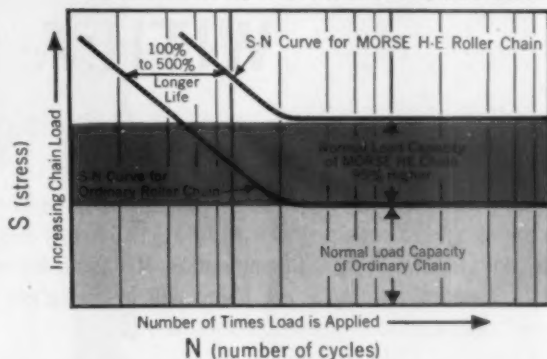
**Morse H-E Roller Chain has up to 500% longer service life . . . cuts replacement and labor costs**

The unretouched photograph shows what happens to chain when the metal fatigues. But now a special Morse process has licked the "tired metal" problem. It gives Morse H-E Roller Chain 95% higher endurance limit . . . and up to 500% longer service life.

The special process means Morse H-E Chain costs about 10% more. But that's a small price to pay for a heavy-duty chain that can save you thousands of dollars annually in replacement costs, downtime, and wasted man-hours.

For more information on the chain that licked the "tired metal" problem once and for all, see your local Morse Distributor. Or write: MORSE CHAIN COMPANY, Dept. 15-118, Ithaca, New York. Export Sales: Borg-Warner International, Chicago 3, Illinois.

Chain Life: Morse High Endurance vs. Ordinary Roller Chain



**Red area:** Under these chain loads, fatigue will break ordinary chain . . . but not Morse H-E.

**White area:** Under these loads, fatigue will break ordinary chain and Morse H-E . . . but Morse H-E will have operated 100% to 500% longer.

IN POWER TRANSMISSION  
THE TOUGH JOBS COME TO

**MORSE**



\*Trademark

**REMEMBER:** Only Morse offers you all four of these basic drives: Roller Chain, Silent Chain, Hy-Vo®, and "Timing"® Belts.

NOVEMBER 24, 1958

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39



## ONLY MEAD BACKS UP CONTAINER QUALITY WITH A BOND!

\$500,000 bond assures you of I.C.C.-approved quality standards

Every Mead Bonded Container you buy is bonded to insure that it equals or exceeds specifications set up under Rule 41, Uniform Freight Classification and Rule 5, National Motor Freight Classification. If a Mead Bonded Container does not meet I.C.C.-approved standards, Mead will immediately pay the full cost of defective containers or rush replacements to you.

Mead Containers, Inc. has complete confidence in the quality of its corrugated shipping containers produced in 14 strategically located plants. This quality assurance, plus the best in container research and design services, is yours when you specify Mead Bonded Containers.

For information, write or call collect your nearest Mead Containers office.

**MEAD**  
*containers*

**MEAD CONTAINERS, INC.**

Executive Offices, 4927 Beech St., Cincinnati 12, Ohio.

National Sales Offices, 230 Park Avenue,  
New York 17, N. Y. • 6124 N. Milwaukee Avenue,  
Chicago 46, Illinois and in principal cities

Subsidiary of **THE MEAD CORPORATION**



NOVEMBER 24, 1958

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# How 4 Frasse tubes



## PUT "LEO" TO SLEEP

This newly developed "Cap-Chur" gun fires a dart-like, self injecting syringe with precise accuracy...has an effective range of 50 yards. The syringe travels at 1200 feet per minute—injects its immobilizing solution 5 seconds after firing...puts an animal to sleep in approximately 90 seconds.

Four types of tubing are used in this modern "blow gun". The barrel is a *seamless steel tube*...the compression chamber is a *welded steel tube*...the syringe is an *aluminum tube*...and the needle is

a *stainless steel tube*. Yet, despite this mixed requirement, all four types are furnished by Frasse—with never a delivery delay or rejection since production began.

So, if you use tubing in your product — want trouble-free quality in a hurry... *it will pay to make Frasse your source for tubing*. Complete Frasse tubing stocks enable you to select the type and size best suited to your needs...and Frasse tubing specialists are always available to assist you with any problem involving a tubular product.

*FRASSE...  
for Tubing*

Courtesy:  
Cresman Arms Co., Inc.

Peter A.



& Co., Inc.

Seamless and Welded Mechanical Tubing  
Pressure and Hydraulic Tubes  
Centrifugally Spun Tubing  
Stainless Tubing, Seamless and Welded  
Stainless Pipe, Valves and Fittings  
Aluminum Tubing, Holobar, Pipe and Fittings  
PVC Plastic Pipe, Valves and Fittings



NEW YORK 13, N. Y.  
17 Grand St.  
Walker 5-2200

PHILADELPHIA 29, PA.  
3911 Wissahickon Ave.  
BAldwin 9-9900

BUFFALO 7, N. Y.  
P. O. Box K, Sta. B  
BEdford 4700

SYRACUSE 1, N. Y.  
P. O. Box 1267  
HOward 3-8655

HARTFORD 1, CONN.  
P. O. Box 1949  
JAckson 9-6861

LYNDHURST, N. J.

• ROCHESTER, N. Y.

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For More Information Write No. 187 on Inquiry Card—Page 32→

*The Ludlow Line Protects Your Products Better*

**This tape's built-in activator  
saves shippers time, money**



Wetting agents *used* to be a problem. They were costly, messy, unreliable and a nuisance to prepare.

Ludlow's Comet Tape has solved this problem with a wetting agent that never fails built right into its trade-mark. As the tape passes over the brush, the Comet trade-mark activates the glue, assuring fast, effective sealing with a minimum of pressure. This exclusive Ludlow feature is available with both Comet Snake Tape\* (reinforced) and Comet superstandard kraft gummed tape.

Comet Tape is typical of Ludlow's job-tailored packaging products. Look to Ludlow for greater protection, lower costs and faster packaging. We'll consider it a privilege to serve you.

\*Rule 41 — approved for center-strip sealing.

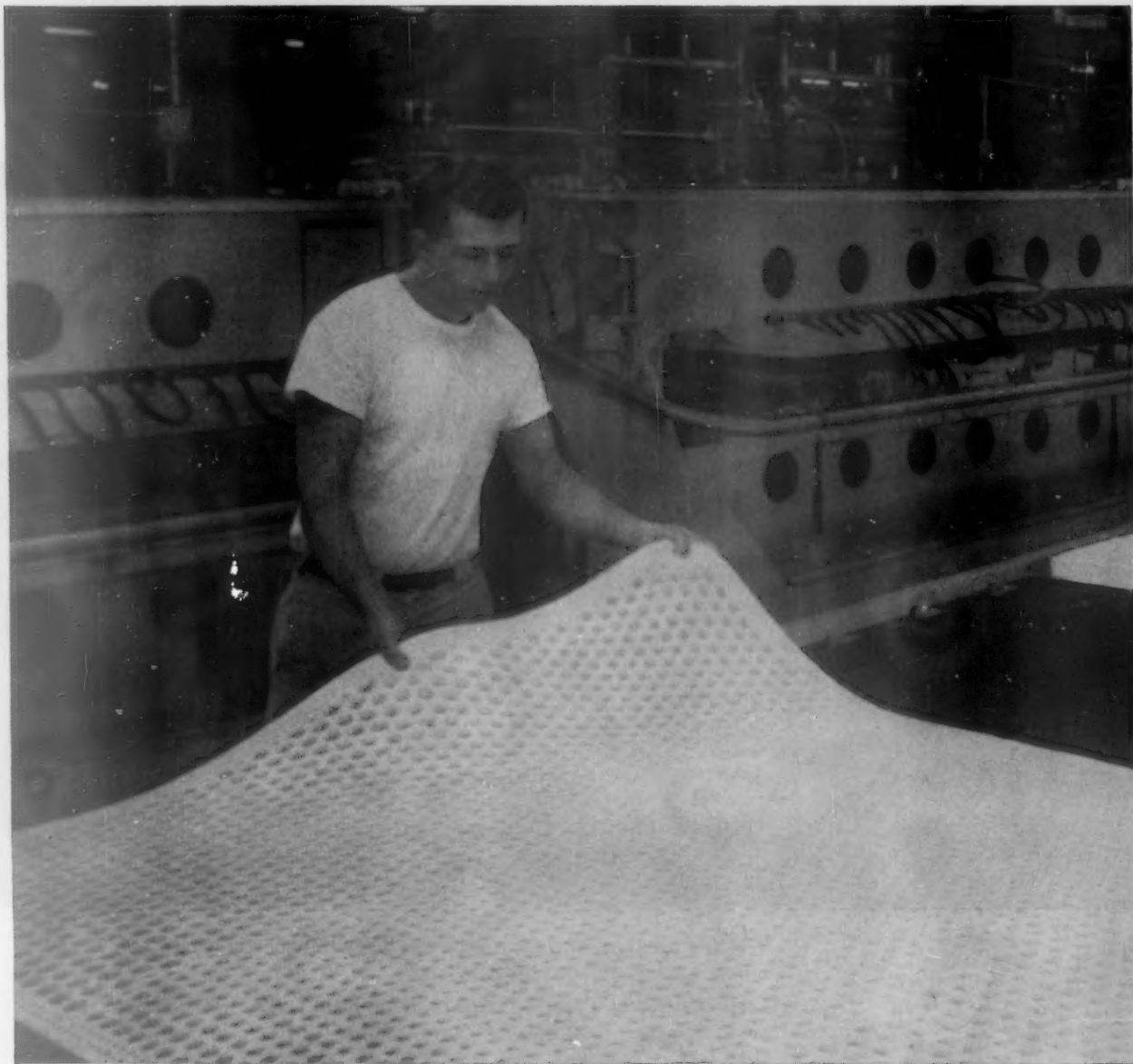


**LUDLOW  
PAPERS, INC.**

**NEEDHAM HEIGHTS 94, MASS.**

*Sales Offices in principal cities*

VPI-COATED PAPERS • GREASEPROOF PAPERS • WATERPROOF PAPERS • POLY-COATED PAPERS • GUMMED TAPES • FEDERAL SPEC. PAPERS • LABEL & SPECIALTY PAPERS • PLASTICS



125 B. F. Goodrich presses, using Gulf Harmony Oil, mould

## GULF MAKES THINGS

"We'd be up to our necks in expensive scrap if we used an inferior hydraulic oil," says Alex Sandomirsky, chief engineer at the B. F. Goodrich Sponge Products Division in Shelton, Connecticut.

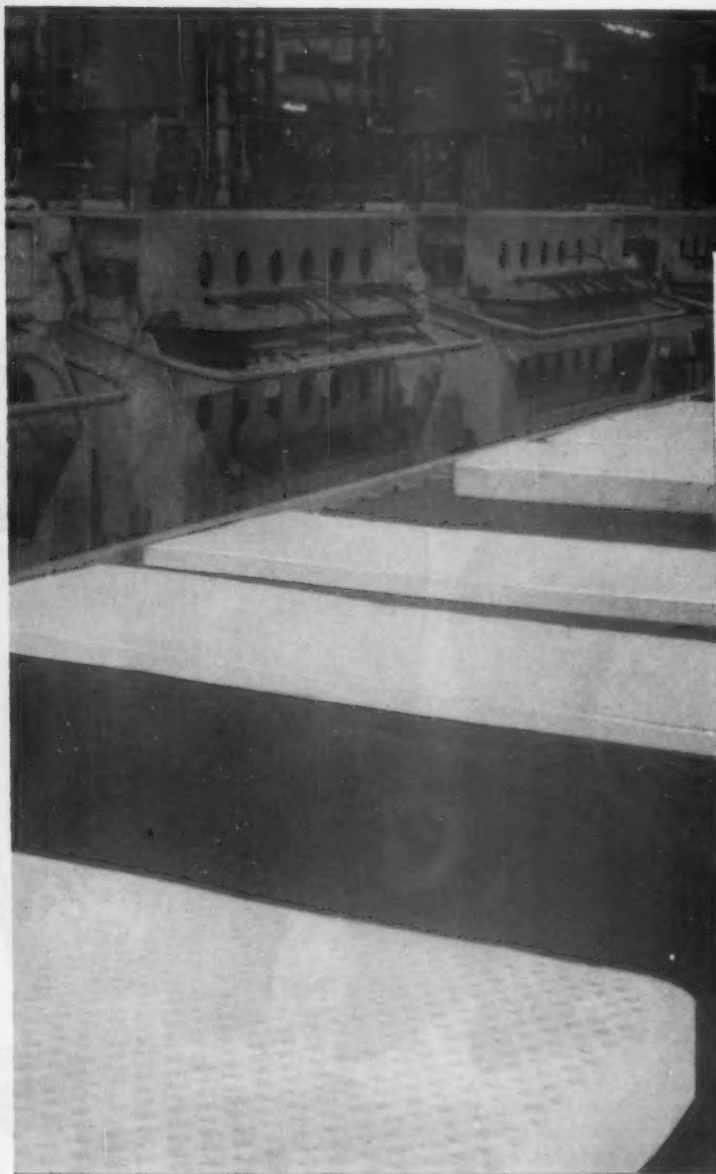
The plant turns out highest quality B. F. Goodrich Texfoam mattresses, pillows, auto seat and furniture cushions around the clock. It has the world's largest installation of rubber moulding presses, 125 of them on one central, 700-gallon hydraulic system. The oil in this system *has* to be reliable, for if one press went out all would have to close down.

B. F. Goodrich uses Gulf Harmony Oil 53 as the power

medium, serving these presses 24 hours a day, 6 days a week . . . tough service for any hydraulic oil. Gulf Harmony stands up perfectly in this operation, to the complete satisfaction of B. F. Goodrich. Production results are excellent.

### Here's why Gulf Harmony Oil stands up so well, so long

New Gulf Harmony has outstanding oxidation resistance. It assures longer life, freedom from harmful sludge deposits. An anti-corrosion additive protects against rust. A patented anti-foam agent eliminates objection-



**Fluid power for the presses.** Gulf Harmony Oil delivers it here, through hydraulic equipment in upper foreground. Pump pressures up to 600 psi. Clamp pressures up to 1500 psi. Here, a press operator strips a B. F. Goodrich Texfoam mattress from the press.



**Gulf Sales Engineer Peter K. Eaton, left,** discusses hydraulic mechanism of a rubber moulding press with Russel T. Korolyshun, project engineer. In the press—ready to be stripped from it—is an L-cushion for a sofa.

**foam rubber 24 hours a day . . .**

# RUN BETTER!

able foaming. Original viscosity and color stability are retained longer.

As a multi-purpose lubricant and hydraulic fluid, Gulf Harmony Oil is available in a full selection of grades to meet all your needs. It is ideal for hydraulic systems, air compressors, blowers, dryer-roll bearings, machine tools, electric motors, central circulating systems and a host of other applications.

Your Gulf Sales Engineer can show you how Gulf Harmony Oil can help you improve production and reduce maintenance costs. Just call your nearest Gulf office, or write for illustrated bulletin.



## GULF OIL CORPORATION

Dept. DM, Gulf Building  
Pittsburgh 30, Pa.

Without obligation on my part, send me illustrated bulletin on Gulf Harmony Oil.

Name \_\_\_\_\_

Title \_\_\_\_\_

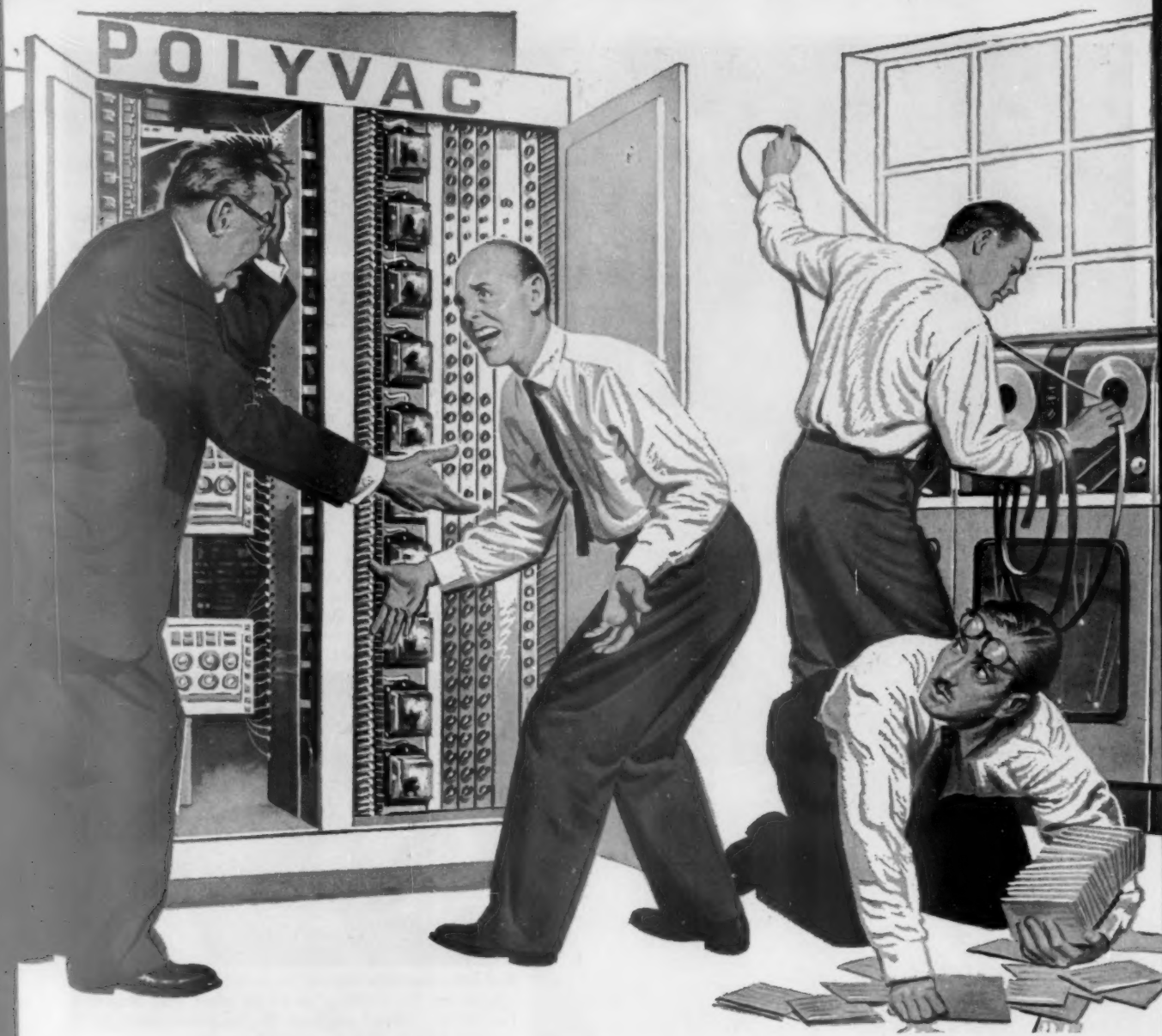
Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

PM-5212

For More Information Write No. 189 on Inquiry Card—Page 32



## The day the brain lost its head

Such excitement—the day our firm took delivery of Polyvac! According to Mr. Ackish, our head accountant, this Giant Brain could do just about anything in the world except warble “Oh Promise Me.”

“Payrolls! Billing! Inventory and sales analysis!” he exclaimed. “She’ll cut corners all along the line.”

Ackish didn’t mention it, but he’d done a little corner-cutting himself. Seems he had picked up a “good enough” power feeder cable

instead of the Okonite cable the engineers had wanted. Polyvac, they had pointed out, gulps a lot of juice.

Well, Polyvac gulped a little too hard one hectic day while rushing out a bid for a big construction project. Ackish’s “good enough” power cable wilted and died, leaving us with our bid stuck in the works and a backlog of seven other big jobs to go.

We’d probably have lost the contract, and we’d *still* be cleaning

up the figures, if Okonite hadn’t come to our rescue. While Ackish was on the President’s carpet, pleading thirty years of faithful service, they were installing an Okonite cable and starting Polyvac up again.

That night, Polyvac suddenly shifted gears and printed out—500 times: “Where power supply is important—dependability comes first.”

That’s one reason why our entire plant is being rewired with Okonite.



where there's electrical power . . . there's **OKONITE CABLE**

*Another fine product gains NEW S.A.\*  
By Switching to the Saginaw Screw*



**WORLD'S MOST EFFICIENT ACTUATOR LIFTS 450 LB.  
FERGUSON TRAIL RAKE CAGE WITH 75% LESS EFFORT**

Massey-Ferguson engineers wanted "something better" than the old-fashioned acme screw in the manual mechanism for adjusting rake cage height in their new Trail Rake "36". They found what they wanted in the Saginaw Ball Bearing Screw. It cuts cranking effort 75%—and since it needs no lubrication, it's never fouled by clinging dirt. They figured the Saginaw Screw would add extra **\*Sales Appeal**—and they were so right. Dealers report farmers love it!

The Saginaw Screw converts rotary motion into linear motion with close to 100% efficiency. That's why alert manufacturers are saving so much effort, power, weight, space and

cost by simply switching from inefficient acme screws and costly hydraulics to these amazingly versatile Saginaw Screws.

We're already building them in sizes from 1½ inches long for delicate electronic controls to 39½ feet long for monster machinery. So if your products (no matter how big or small) use any kind of actuation device, Saginaw Screws may give them that vital new **Sales Appeal** you're looking for now.

Just send us your catalog and our expert engineers will gladly suggest any possible applications. Saginaw Steering Gear Division, General Motors Corporation, Saginaw, Michigan—world's largest builders of b/b screws and splines.

*\*Give your products  
NEW SALES APPEAL...  
switch to the*

**Saginaw**

**WORLD'S MOST EFFICIENT ACTUATION DEVICE**

**ball bearing Screw**

# **Information For Your Catalog Files**

## **BATTERIES**

Bulletin 6205 has 8 pages listing design improvements in stationary batteries. Text, closeup photos, and cutaway views demonstrate how these improvements contribute to lower internal stresses and elimination of sediment shorts.

**Electric Storage Battery Company**

Write No. 1 on Inquiry Card—Page 32

## **DIAMOND WHEELS**

Form ESA-290 contains net prices for man-made diamond wheels in resinoid and vitrified bonds. Also described are natural diamond wheels in metal bond.

**Simonds Abrasive Company**

Write No. 2 on Inquiry Card—Page 32

## **FABRICATING ALLOYS**

A 30 page guide for purchasing complex and unusual alloy sheet and light plate fabrication. It includes over 80 photographs and sketches of products and fabricating techniques.

**S. Blickman, Inc.**

Write No. 3 on Inquiry Card—Page 32

## **FLEXIBLE CONNECTORS**

Bulletin No. F2 describes Flexlube polyvinyl chloride covered oil feed and coolant lines. Specifications are listed and the lines are illustrated.

**American Metal Hose Co.**

Write No. 4 on Inquiry Card—Page 32

## **LUBRICANTS**

A catalog on Duo-Kote, a combination phosphate coating and lubricant applied in one application. It shows how anneals are eliminated.

**Reilly-Whiteman-Walton Co.**

Write No. 5 on Inquiry Card—Page 32

## **MANUFACTURING FACILITIES**

An 8 page, three-color brochure providing information about electronic and precision mechanical engineering and manufacturing. Listed are facilities, products, and services offered.

**Model Engineering and Manufacturing, Inc.**

Write No. 6 on Inquiry Card—Page 32

## **METAL-CLAD SWITCHGEAR**

Bulletin GEA-5664E is a 40 page catalog providing detailed information on the operation, characteristics, and application of indoor and outdoor metal-clad switchgear. It includes dimensional drawings, rating and weight tables of the units, and equipment diagrams.

**General Electric Company**

Write No. 7 on Inquiry Card—Page 32

## **OFFICE FURNITURE**

A catalog listing various types of aluminum office furniture. Adjustable chairs, desks, and tables are featured.

**General Fireproofing Company**

Write No. 8 on Inquiry Card—Page 32

## **PIPE**

A 116 page bulletin that explains how to handle and install pressure pipe. It discusses receiving and handling, assembly at fittings, and repairing damaged pipe.

**Johns-Manville Corporation**

Write No. 9 on Inquiry Card—Page 32

## **SPECIAL TOOLS**

Bulletin No. 571 (48 pp.) deals with a wide variety of special metalworking tools. Included are rotary slitting and trimming knives, forming rolls, milling cutters, broaches, saws, etc.

**Cowles Tool Co.**

Write No. 10 on Inquiry Card—Page 32

## **STAINLESS STEEL**

A revised edition of a booklet on extra-Low-Carbon stainless steel. Both chemical analyses and typical mechanical properties are given. Illustrated are representative applications.

**Armco Steel Corporation**

Write No. 11 on Inquiry Card—Page 32

## **STAINLESS STEEL SHEET**

A 32 page book giving detailed information about Microrold special purpose stainless steel sheet and strip grades. Described are physical properties, heat resistance, and surface finishes.

**Washington Steel Corporation**

Write No. 12 on Inquiry Card—Page 32



**BIG PART  
OF U.S.**

Architect's rendering of the new  
Bagpak plant in Litchfield, Ill.

**GETS FAST,  
SHORT-HAUL  
DELIVERIES OF  
INTERNATIONAL  
MULTIWALL  
BAGS!**

You benefit directly from International Paper's modern, new Bagpak plant in Litchfield, Illinois.

If your plant is situated in the heart of this busy mid-western market, you now have an even closer source for the full line of International multiwall bags.

Industry in other parts of the United States benefits by faster and better service too. For Litchfield's capacity eases the demand on our other plants and warehouse facilities.

With this increase in manufacturing facilities and distribution efficiency, it will pay you to remember that wherever you are, you're never far from International Paper . . .

*your most dependable source of supply . . .*

**INTERNATIONAL  
PAPER**

BAGPAK DIVISION, N. Y. 17, N. Y.



# SLASH GLOVE COSTS

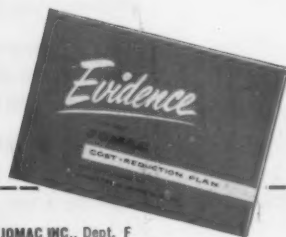


## GIVE EXTRA PROTECTION with the **JOMAC** COST-REDUCTION PLAN

Customer: major metalworking plant.  
Operation: fabricating large sheet metal parts. This is just one of scores of case histories on how the Jomac Cost-Reduction Plan has made big savings. Proof that this plan can work for you is yours for the asking. Write for "Evidence" booklet shown opposite.

### **JOMAC** INDUSTRIAL GLOVES

Plants in Philadelphia, Pa., and Warsaw, Ind.  
In Canada: Safety Supply Company, Toronto  
In Europe: North-Jomac Ltd., London, W1



JOMAC INC., Dept. F  
Philadelphia 38, Pa.

☐ Send me a copy of your "Evidence" booklet

☐ Have your representative call

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

For More Information Write No. 193 on Inquiry Card—Page 32

## Catalog Files

### **STRAPPING**

This 52 page catalog covers a complete line of strapping and materials handling equipment. Included are application photos, charts, and useful information.

**A. J. Gerrard and Company**

Write No. 13 on Inquiry Card—Page 32

### **VALVES**

A 92 page bulletin describing a complete line of cast and forged steel valves. Catalog 14 includes ASA dimensions and pressure-temperature ratings, along with ASTM basic materials specifications. Condensed rating tables appear on each page next to the pertinent valve listing.

**Edward Valves**

Write No. 14 on Inquiry Card—Page 32

### **VALVES (MAGNETIC, MOTORIZED)**

Within its 24 pages, Catalog V-58 illustrates and lists specifications of magnetic and motorized valves. They are designed for use with air, water, gas, steam, oil, and refrigerants.

**The Mercoid Corp.**

Write No. 15 on Inquiry Card—Page 32

### **VALVES (INDUSTRIAL)**

A 28 page catalog listing a complete line of industrial valves. Valve figure numbers are indexed for finger-tip reference by topics, while face to face dimensions are supplied in full size ranges. Also included is a comparison chart and a list of abbreviations commonly used in the valve industry.

**Ohio Injector Company**

Write No. 16 on Inquiry Card—Page 32

### **WIRE ROPE LUBRICATION**

How to reduce wire rope cost by proper lubrication is the subject of a 12 page booklet. Lubricants are recommended for different types of wire rope and operating conditions.

**Union Wire Rope Corp.**

Write No. 17 on Inquiry Card—Page 32



New Bastian-Blessing handle (shown at right) is delivered by Chase Brass in multiple lengths, to avoid waste in cutting. (Note contrast with old handle.)

## Ask Bastian-Blessing How to get new product appeal and easier manufacture

Bastian-Blessing Company has for years made a complete line of welding torches. On one of their models they used a regular brass tube which was knurled during the manufacturing process. To increase the attractiveness of this torch and minimize production problems—they developed the idea of a fluted tube.

The customer wanted a mill-drawn surface which would need no further finishing—except scratch brushing. Flute spacing had to be kept regular; interior diameter had to hold vital concentricity. The Bastian-Blessing Company in cooperation with Chase Brass & Copper Co. was able to achieve their objectives:

- Better style—more eye-appeal.
- A much more comfortable and easier-gripped handle.
- Improved machineability.
- A more rugged product than before.

**PLUS—costs kept in line with the old handle!**

Whatever product you design or make, chances are you can do it better with Chase Brass—alloyed from copper by Kennecott. Your nearest Chase Representative is ready to discuss your needs with you. You can reach him locally or by writing Waterbury 20, Connecticut.

# Chase



**BRASS & COPPER CO.**  
WATERBURY 20, CONN.

Subsidiary of  
**Kennecott Copper Corporation**



*The Nation's Headquarters for Brass, Copper and Stainless Steel*

Atlanta Baltimore Boston Charlotte Chicago Cincinnati Cleveland Dallas Denver Detroit Grand Rapids Houston Indianapolis Kansas City, Mo. Los Angeles Milwaukee Minneapolis Newark New Orleans New York (Maspeth, L.I.) Philadelphia Pittsburgh Providence Rochester St. Louis San Francisco Seattle Waterbury

For More Information Write No. 194 on Inquiry Card—Page 32

NOVEMBER 24, 1958

51

# CONTINENTAL

the  
number

# 1

# DRILL

for

## LOWER COST PRODUCTION

Every day in America's cost-conscious plants, Continental drills are proving their ability to produce a finer, cleaner hole and to last longer — up to 25% more production! Continental drills cost you less per hole!

# CONTINENTAL DRILL CORPORATION

555 W. Adams St., Chicago 6, Illinois

**WAREHOUSES:**  
NEW YORK: 75 Murray St. BA 7-4220  
LOS ANGELES: 2944 Tweedy Blvd. LO 7-4424  
TACOMA, WASH.: 2006 Center St. MA 7-3434

**FREE 4 PERMANENT  
TIME-SAVING CHARTS**

9

Continental Drill Corp., 555 W. Adams Street  
Chicago 6, Ill.

Send us FREE handy-form permanent charts  
checked below.

☐ Conversion Factors ☐ Drill Grinding Data  
☐ Cutting Speeds and Feeds ☐ Tap Drill Sizes, Dec. Equiv.

Co. Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Attention: \_\_\_\_\_

For More Information Write No. 195  
on Inquiry Card—Page 32

## Letters To The Editor

### WHAT'S IN A NAME

We would like to impose on you for some purchasing information. I have for some time thought the title "Purchasing Agent" for one who heads the purchasing department is old-fashioned or even archaic.

I note the bigger companies and a growing number of the smaller companies are using the title "Director of Purchases" instead of "Purchasing Agent."

Can you tell me how generally accepted the term "Director of Purchases" is among the smaller concerns and what your opinion is of the title "Director of Purchases" vs. "Purchasing Agent."

Wilson Rosebraugh  
Purchasing Agent  
Holophane Company, Inc.  
New York, New York

• The National Industrial Conference Board made a study of purchasing department titles several years ago. In small companies with sales under \$5 million, the chief purchasing executive is called "Purchasing Agent" in 86% of all cases. In other such companies he is called "Director of Purchases" 5% of the time, "Vice President" 2%, "General Purchasing Agent," 5% and by other titles in 2% of all cases. As the company grows in size the title "Purchasing Agent" becomes less important. For example, in companies with sales of \$5 million to \$50 million, the title of "Purchasing Agent" exists in only 68% of all cases, while the title "Director of Purchases" is used in 18% of all cases, and that of "Vice President" in 8%. In companies with sales over \$50 million the figures are 25%, 38% and 9%. Thus, as the company gets bigger and bigger the title of "Director of Purchases" replaces that of "Purchasing Agent."

### LOW MELTING-POINT ALLOYS

We wish to obtain a fusible alloy metal, melting point 174° F., which is eutectic and capable

of being soldered to a copper tag.

We have sent an inquiry to the Metal & Thermit Corporation, whose name we saw in the June 23rd issue of PURCHASING. But perhaps you could put us in touch with another U. S. manufacturer.

We know that we can obtain this alloy in the United Kingdom, but the price is high and it is possible that United States manufacturers would offer a cheaper alternative alloy.

For this reason we should like to know the composition of the alloy offered and its price for 1 cwt. lots. If the manufacturer has an agent in this country that is sometimes an advantage when arranging importation.

C. W. E. King  
Buyer and Material Controller  
The Rheostatic Company  
Slough, Bucks, England

• A number of American companies make low melting-point alloys. Among them are Handy & Harmon and American Smelting & Refining Company, both in New York and Belmont Smelting & Refining Company in Brooklyn.

### DAUNTLESS EFFORTS

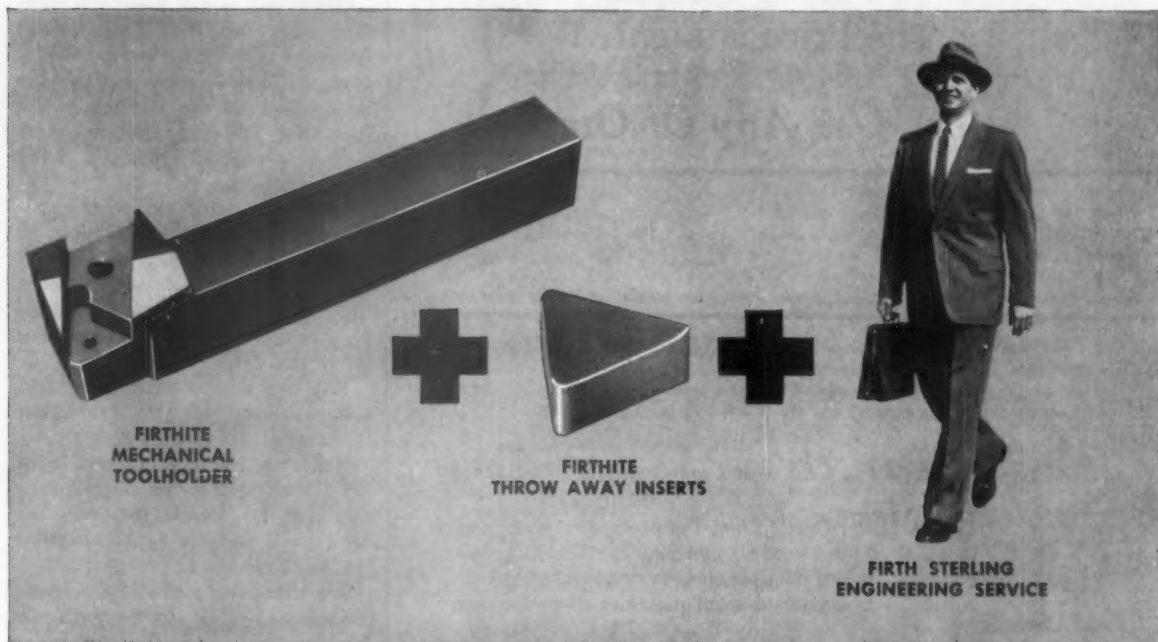
The response to the article about us (PURCHASING, August 18, issue) has been at the rate of six to ten inquiries a week. The Charles Bruning Company (whose process we use to reproduce the forms) is publishing the article in their house organ and various other sales aids. Naturally, we have referred them to PURCHASING Magazine, since we assume that the article is copy-righted.

Again, we would like to thank you for thinking enough of our system to do an article based on it and to commend your dauntless efforts in publicizing the value of Value Analysis.

J. D. Spillers  
Purchasing Agent  
Industrial Nucleonics  
Columbus, Ohio

# Firth Sterling ...

PIONEER IN POWDER AND MOLTEN METALLURGY



## TOOL UP FOR ECONOMY with this cost-cutting combination

There are two important reasons why thousands of metalworking plants are cutting costs with Firth Sterling mechanical toolholders, throw away inserts and engineering service. First, the broad experience and expert application knowledge of Firth Sterling engineers (yours at no cost) help you plan your tooling program for maximum savings. Second, in this complete line, Firth Sterling has toolholders and inserts—exactly right for your job:

**THRIFTOOL**—lowest cost toolholder made. Offers chipbreaker, rigid insert and rapid indexing for reduced set-up time.

**ECONODEX**—medium priced holder is ideal for jobs requiring positive rake. Carbide anvil and carbide chipbreak clamp assure long life.

**MECHANIDEX**—for heavy-duty machining. Adjustable chipbreaker offers extreme versatility, allowing top and bottom indexing of inserts.

**FIRTHITE INSERTS**—most precise dimensionally—are available in a full range of Carbide grades and the new Firthite Cermet WF Grade. Now available for the first time, high speed steel throw away inserts in two of Firth Sterling's top cutting grades—Circle C and Van Chip.

To get help with your tooling problem from a Firth Sterling engineer, simply call your nearest Firth Sterling sales office or distributor. And for further information on Firth Sterling toolholders and inserts, write for descriptive bulletin MTI-3: FIRTH STERLING, INC., Dept. 71L, 1313 Forbes St., Pittsburgh 30, Pa. Offices and warehouses in principal cities.

"Your Future is Great in a Growing America"



PRODUCTS OF **Firth Sterling** METALLURGY

HIGH SPEED STEELS • TOOL & DIE STEELS • STAINLESS SPECIALTIES • HIGH TEMPERATURE ALLOYS  
SINTERED TUNGSTEN CARBIDES • HEAVY METAL • CERMETS • CHROMIUM CARBIDES  
ZIRCONIUM • STERVAC & STERCON SUPER ALLOYS



For Stampings Standard...  
 For Stampings Right...  
 Or Stampings Special...  
 The Price is Light...

Use Any Of Our

3



BRACKETS METALLIC GASKETS SPECIAL WASHERS CLAMPS ELECTRONIC CHASSIS BRAZED AND BENCH ASSEMBLIES

Now you can be sure...with a nationally-known stampings service... in your area...experienced, factory-trained sales engineers available for consultation...for stampings in quantities one to a million...with the advantages of better quality, faster delivery and lower costs. Here's how it's done:

# I A FEW PIECES—at Experimental or Pilot Stage

**NO DIES!** Our Machine Cut Method, applying custom-built slitters, cutters, notching dies, slotting dies, bending tools and stock punches—PLUS special techniques and skills—produce these small quantities at very low cost.

# II SHORT RUNS

## LOW-COST, SHORT RUN TOOLING!

This Method produces something more than a few, but less than high production quantities. Simple contour dies, special purpose presses keep costs 'way low. Newly expanded facilities speed deliveries.

# III PRODUCTION RUNS

**MODEST DIE CHARGES** on larger quantities! Here is where our regular Production Tooling Method applies to advantage...to deliver high quantity Stampings, and at lowest possible unit cost.

Free 12-page booklet  
 Service in Stampings shows  
 how to save. Write for it.

Our service checks your requirements against our 3 methods...one is sure to work out best for you—and your budget. Let us quote your next job...including brazing, welding and assembly, if desired.

STAMPINGS DIVISION  
 "One Piece or a Million"

LAMINATED SHIM COMPANY, INC.  
 ...on most Bid Lists  
 2411 UNION STREET, GLENBROOK, CONN.



For More Information Write No. 197 on Inquiry Card—Page 32

## Letters

### THANK YOU, MR. STILWELL

October 2 and 3 were red banner days for the Management Institute of the University of Wisconsin. The reason I refer to these days as red banner is the fact that Doug Francisco, your midwest editor, presided over conferences for us.

Mr. Francisco did a tremendous job of representing you, in doing a great amount of thought stimulation, and at the same time giving the Purchasing Management Group in attendance a lot of food for thought.

You are to be commended and congratulated on your selection of associates.

Knowing my good friend, Stuart Heinritz, and the high qualities that he stands for, you indeed have an able representative in Mr. Francisco.

We are deeply grateful to you for allowing him to be with us. We sincerely hope that we have the pleasure and opportunity again in the near future. In the meantime, we hope that you, he, or any of your associates at PURCHASING Magazine will call upon us whenever you think we can be of aid and service to you.

William P. Stilwell  
 Assistant Director  
 The University of Wisconsin  
 Madison, Wisconsin

### HARBRIDGE HOUSE

We appreciate your kind permission to reprint excerpts from your August 4 editorial concerning commercial gifts. These excerpts will be cited in a sales managers' training manual which Harbridge House is preparing for the National Stationery and Office Equipment Association.

We here at Harbridge House support your editorial thesis that responsibility for curtailing improper business gifts is a mutual responsibility of sales managers and purchasing agents.

Bayley F. Mason  
 Harbridge House, Incorporated  
 Boston, Massachusetts



# DoALL SAW BLADE gives you the most sawing for your dollar

Think of it! Here's a precision cutting tool, costing only \$2.58, that is capable of cutting 13,000 sq. in. of aluminum. In a typical cost study, No. 355 cast aluminum was cut at 25 sq. in. per minute. Tool cost, based on the actual life of the blade, was only 1/50th of a cent per sq. in.

This gives you some idea of what is

happening in metalworking with the new speeds and low tool costs made possible with modern DoALL band machining.

Where else can you get this much cutting for so little tool cost?—And the faster cutting rates reduce direct labor costs, too! The table below gives you typical examples of DoALL Saw Blade performance.

## HERE'S THE PROOF!

Cost/sq. in.	Material	Sq. in. cut/min..	Standard Blade
1/13¢	No. 316 Stainless Steel 1/4" Thick	5	3/4"—10 Pitch Friction Saw Blade
7/100¢	24 ST Aluminum	140	1/2"—3 Pitch Buffruss ®
1/5¢	Structural Steel	37	1"—10 Pitch Friction Saw Blade
4/10¢	"Ketos" Tool Steel	1.25	1/4"—6 Pitch Claw Tooth ®
1/50¢	No. 355 Cast Aluminum	25	1/2"—3 Pitch Claw Tooth

## Lower costs ahead for you

Forward-looking manufacturers are taking advantage of the new economies available through DoALL's advanced techniques. Without obligation, a DoALL specialist

will gladly discuss your specific applications and advise you where new methods can be applied to save you money. Call your local DoALL store today.



Zephyr machine trimming high chrome-nickel castings. Tool cost 94¢ per 100 cuts.



Model 16-3 Contour-matic sawing aluminum segments. Tool cost 3¢ per 100 pieces.



Model 26-3 Contour-matic slotting bronze castings. Tool cost 46¢ per 100 pieces.

3/16" Wide—

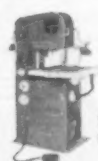
3-Pitch Claw Tooth Blade 10' Long.



36-W  
Zephyr



16-M  
Contour



16-3  
Contour-matic ®

SB-63



THIS IS A  
TYPICAL DoALL STORE

NOVEMBER 24, 1958

# The DoALL Company, Des Plaines, Illinois



Machines and Blades



Surface Grinders



Power Saws

Call Your DoALL Service-Store



DoALL  
SAW BANDS



MEASURING  
INSTRUMENTS



SHOP SUPPLIES

For More Information Write No. 198 on Inquiry Card—Page 32

for greater strength . . . easier assembly

## The new Grinnell Wedge Type Concrete Insert

Fig. 281



**NEW** design features give Grinnell's Wedge Type Concrete Insert (Fig. 281) greater load carrying capacity . . . 1200 lbs. for  $\frac{5}{8}$ " and  $\frac{3}{4}$ " sizes, with a safety factor of at least 5 to 1.

Heavy gauge steel is die-formed into a wedge-shaped box housing. When load is attached to the inserted nut and rod assembly, ends of the elongated nut press on the wedge-slanted walls.

These walls, acting in compression with the concrete, provide strength unmatched in steel inserts of equal size.



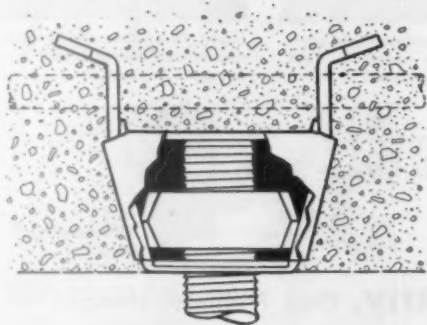
Preassembly of the elongated nut on the rod makes quick assembly possible.



Installations can be made in quick time, too. Just a few turns of the rod tighten the nut rigidly in place. Slightly loosening the nut permits lateral adjustment along the full length of the slot, without fear of rod and nut falling out of the body.

Single body size accommodates four different interchangeable nut and rod sizes, to make ordering easier and installation simpler—especially where hanger rod sizes cannot be determined in advance of ceiling construction.

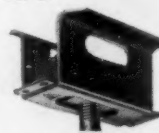
On your next project, specify Grinnell Concrete Inserts — either steel or malleable iron. Quality manufactured . . . and priced right! Grinnell Company, Inc., Providence 1, R. I.



CB-Universal Malleable Iron Concrete Insert (Fig. 282)



CB-Junior Malleable Iron Concrete Insert (Fig. 279)



Wrought Steel Concrete Insert (Fig. 280)

# GRINNELL

PIPE HANGERS AND SUPPORTS



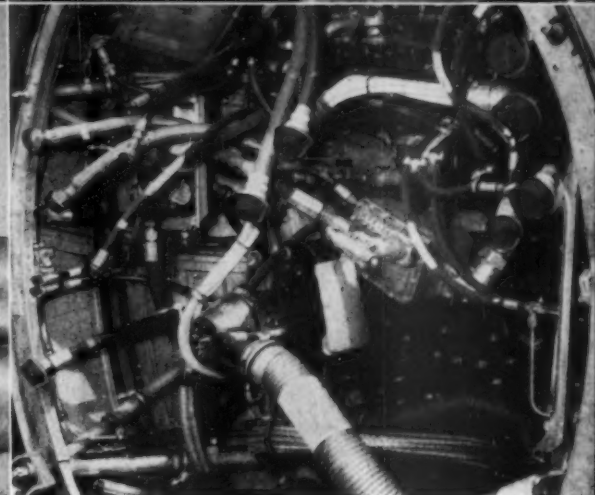
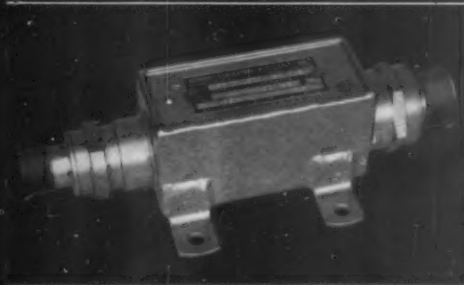
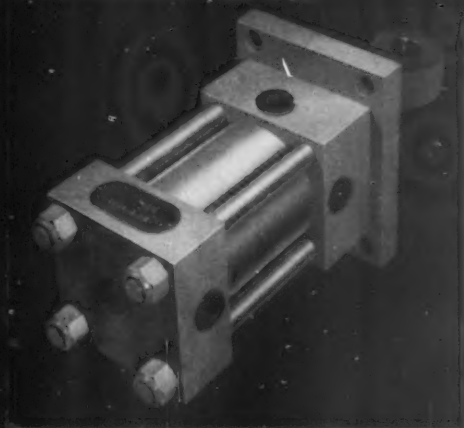
Grinnell Company, Inc., Providence, Rhode Island

Coast-to-Coast Network of Branch Warehouses and Distributors

pipe and tube fittings • welding fittings • engineered pipe hangers and supports • Thermolier unit heaters • valves  
Grinnell-Saunders diaphragm valves • pipe • prefabricated piping • plumbing and heating specialties • water works supplies  
industrial supplies • Grinnell automatic fire protection systems • Amco air conditioning systems

For More Information Write No. 199 on Inquiry Card—Page 32

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*chances are you'll find Caplugs ideal for your closure needs, too . . . they're made of tough, flexible Polyethylene . . . easy to apply and a cinch to remove . . . won't chip, break, shred or collapse . . . over 500 sizes in a dozen different styles now on the shelf.*

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IN PROCESS, STORAGE AND TRANSIT**

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Comparative tests  
 prove *Norgren*  
**AIR LINE FILTERS**  
**SAVE**  
**MAINTENANCE**  
**TIME**



**No Tools Required...  
 Fewer Parts to Handle**

Compare Norgren with other makes of manual drain filters. All others require tools to take them apart ... then there are a dozen or so loose parts—easily dropped and lost, and likely to be improperly reassembled. Not so with Norgren Filters. No tools are needed for maintenance and there are only four parts to reassemble. Maintenance is simple... an easy job for anyone. This means a big saving in maintenance time and money.



**Norgren Filters Provide Top Performance** in removing damaging solids and liquids from an air line. Transparent or metal bowls. 1/4", 3/8", 1/2", 3/4", 1" pipe sizes.

MAKE	NORGREN	A	B	C	D	E
LOOSE PARTS TO DISASSEMBLE	<b>4</b>	9	16	13	6	12
TOOLS REQUIRED FOR MAINTENANCE	<b>NONE</b>	Wrench	Wrench & Screw-driver	Screw-driver	Wrench	Wrench & Pliers
TOOL OPERATIONS REQUIRED	<b>NONE</b>	2	10	16	2	4

*If it's Norgren... It's Dependable.*

For complete information, call your nearby Norgren Representative—or  
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## Purchasing People In The News

New assignments in the purchasing and stores department of United Air Lines at San Francisco and Chicago have been announced.



**N. J. Mc Mahon**   **E. M. Gordon**

Appointments at San Francisco are: **E. M. Gordon**, 31-year United veteran, has been named assistant to the vice president-purchasing and stores. **N. J. McMahon**, with United since 1943, becomes manager of purchasing and stores, succeeding Mr. Gordon. Other appointments were: **C. L. Vaudrey**, purchasing manager; **D. F. Snyder**, stores manager; **L. B. Bryant**, assistant stores manager.

Appointments at the company's Chicago executive offices were: **D. B. O'Connell**, purchasing manager; **H. W. Benton**, stores manager; **D. H. Tallman**, superintendent of system stores; **W. O. Buehler**, superintendent of system purchasing.

Two new appointments have been announced by General Foods Corporation, White Plains, N. Y. **Martin J. Kahl** will become manager, raw materials and commodity services, and **Lee Bogart**, manager of cocoa purchases. Mr. Kahl joined GF as a statistical specialist in 1945. Following a number of positions in the purchasing department, he became manager of the cocoa purchasing function in 1955. Mr. Bogart has been with the company since 1936, more recently in the purchasing area. He has been manager for raw materials purchases since 1955. In his new post as manager of cocoa purchases, Mr. Bogart will be assigned to GF's Walter Baker operation.

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NOVEMBER 24, 1958

The appointment of **Arthur R. Pitkin** as purchasing agent has been announced by Tex-Tube, Inc., Houston, Texas. Mr. Pitkin will be responsible for purchasing all maintenance supplies and raw materials for production. Mr. Pitkin is a member of the National Association of Purchasing Agents.

Whitin Machine Works, Whitinsville, Mass., has announced the advancement of **Leonard White** from assistant general purchasing



**Leonard White**

agent to general purchasing agent. In his new position Mr. White has assumed the duties relinquished by vice-president **Ralph E. Lincoln**. Mr. White came to Whitin in 1943 as steel buyer, having had previous experience in steel sales with Jones & Laughlin Steel Corp., Pittsburgh, Pa.

Northwest Division of The National Supply Company, Pittsburgh, Pa., has named **D. W. Boyles** assistant purchasing agent at their **Casper, Wyo.** headquarters. Mr. Boyles joined the company in 1952 at its Casper store and became store manager at Craig, Colo. in 1956. He has been in the division merchandising department, at Denver, Colo. since 1957. In his new position, Mr. Boyles will handle all emergency purchasing in the Casper area for the company's oil field supply stores in the Northwest Division.

**George W. Glynn** is the new purchasing agent at The Edwards Company, Inc., Norwalk, Conn. Formerly, assistant purchasing agent, Mr. Glynn replaces **Robert**



**G. W. Glynn**   **R. E. Bernhard**

**E. Bernhard** who has become factory manager for the company.

With Edwards since 1935 Mr. Glynn will be in charge of all company purchasing. He has served in several Connecticut purchasing groups, both on a statewide and regional level. Mr. Bernhard joined Edwards in 1953 as sub-contract supervisor and was appointed purchasing agent later that year. He is first vice president of the Southern Connecticut Purchasing Agents Association.

**Donald Binder** has been appointed purchasing agent for Ramset Fastening System, Olin Mathieson Chemical Corporation, Cleveland, Ohio. Mr. Binder was formerly customer service manager in the sales department.

**Roderick H. Sears** has been named director of purchases by Scott Paper Company, Chester, Pa. Mr. Sears joined Scott in 1936, working in the sales and then later in the financial department. Upon returning to Scott after the war he worked in the production division at the Chester plant. In 1946 he was named plant superintendent in Hoboken. He subsequently served as plant manager at South Glens Falls, N. Y., and Marinette, Wisc. Since 1956 Mr. Sears had served as manager of the Fort Edward, N. Y., plant with additional responsibility for the company's facilities in nearby South Glens Falls, N. Y.

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**stampings**  
... look for the  
**PLUS**  
**beyond**  
the **PRICE!**...



**engineering  
for instance**

Each day, our engineers suggest slight changes which eliminate higher tooling costs or additional operations on our customers' stampings.

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COMPANY**

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408 Midland Ave., Detroit, Mich.

"America's Leading Job Stamping Manufacturer"

**Look to Detroit!**

For More Information Write No. 202  
on Inquiry Card—Page 32

## **FOB—"filosofy of buying"**

**R**EPUBLIC Aviation Corporation, Farmingdale, N.Y. has a good idea for heading off possible vendor claims that a buyer has

date, so there is no possibility of their giving out advance bid information even if they wanted to.

As you can see from the photo,



A peek into the bid room.

given out advance bid information to a competitor.

All bids that come in from suppliers are turned over to Barbara Betts, custodian of Republic's bid room. She keeps them until the established deadline date. Buyers never see the bids until the due

the bid room is roped off to keep buyers away. But even a buyer who may be in good enough shape to high hurdle his way into the bid room, won't get anywhere. The bids are kept under lock in the file cabinets.

**I**F THIS IS the time of year your conscience (or reasonable facsimile thereof) begins to bother you, don't despair. A non-profit organization, known as the Bribery Preventive League, has been formed in England. It offers free consultation to people who are nervous about giving too much or accepting too much in the way of presents (or reasonable facsimiles thereof) at Christmas time—or any other season for that matter.

News of this new public service so moved Columnist Art Buchwald of the *New York Herald Tribune* that he devoted a whole piece to the League. His closing comments:

"Fortunately this situation doesn't exist in the United States. That is why there is no such thing as a Bribery Preventive League in America.

"But there still may be individ-

ual cases of Christmas gift giving, particularly since Americans are adapting themselves so quickly to British business methods.

"Therefore, here are a few of our own basic rules for American employees during the holiday season:

"1.—Do not accept more than you can eat or drink in a year.

2.—Make sure none of the gifts are sent to the office, where your boss might see them and wonder why he didn't get any himself.

3.—Never accept a gift smaller than the one sent the previous year.

4.—If there is any question as to the size or value of a gift, which might compromise you in any way, check with your local Internal Revenue office to see if you have to pay taxes on it.

5.—Do not advertise the sale of unwanted Christmas gifts on the company bulletin board."

P.S. Buchwald is considered one of the better humorists writing for newspapers today.

ON THE SAME subject, Randy M. Tobutt of Chicago also has some strong opinions. Executives who send "clients" the traditional fruit cakes, hams, turkeys, liquors and other consumables may be wasting the company's money, he says. After talking to a business man who had just received 26 Christmas fruit cakes Tobutt is reported to have said, "It made me wonder just how much money was going down similar rat-holes around the country."

What's got us puzzled is the exact significance of the term "rat-hole." Did he mean that literally or figuratively?

Oh yes, we forgot to mention: Tobutt heads a business gift service that lets the recipient choose his own gift from a long list of durable items. None of that stuff—cheese, whiskey, candy, etc.—that goes down that mysterious rat hole.

MR. E. A. MOOERS is a very capable, very discerning man; capable because he's not only president of the Hilliard Corporation, Elmira, N.Y., but also Mayor of the City of Elmira. Discerning because he recognizes the importance of purchasing and ranks it high in his own company. In a recent issue of the company's "News Sheets", Mr. Mooers described our own Ned Kellogg's story on Hilliard's purchasing department (Vendor Relations: Key to Small Company Success, PURCHASING, September 29). "A fine picture of Carl (Carl Bauer, Hilliard's P.A.) at work in his office accompanies the article," wrote Mr. Mooers. "We're proud of our purchasing department under his leadership and everyone will want to congratulate Carl for getting this national recognition which, after all, is a compliment to our company and to us as well."

# Coat it, forget it...for years

## Use Aluminum Paint with Reynolds Aluminum Pigment



These men are doing a job that won't have to be re-done for a good many years. The aluminum paint they're putting on is actually a tough shield that will stand up against rust and corrosion, and won't need attention for years.

A quality brand of aluminum paint applied as the manufacturer recommends assures extra years of protection. Often one coat will do the job.

Inside your plant or outside, paint made with Reynolds Aluminum Pigment can save metal or masonry from deterioration, cut maintenance. Also use it to give your plant the modern look of aluminum.

Aluminum paint reflects heat, keeps the buildings cooler in summer, slows evaporation of volatiles and reduces metal expansion. And it reflects light

to make interiors brighter, more attractive. Use aluminum paint, the modern finish, to keep your plant looking new. For more complete information write for the literature listed below.

### For Low-Maintenance Roofs Use Asphalt-Aluminum Coatings

Built-up or metal roofs last longer, resist rust, keep buildings cooler when coated with asphalt-aluminum roof paints or coatings. The best of these roof coatings have this Warranty Seal, guaranteeing an approved vehicle and at least two pounds of pure aluminum pigment per gallon.



"By the makers of Reynolds Wrap"



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Please send me information on  
☐ Aluminum Paints ☐ Roof Coatings

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Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

For More Information Write No. 203 on Inquiry Card—Page 32

**NOSCO**

**"CAN DO"**

*converts brain-child  
into man... of molded plastic*

**DIURIL**  
© 1958 MERCK & CO., INC.

This was the brain-child of Merck Sharp & Dohme, pharmaceutical manufacturer. They showed Nosco a sketch and said "Make us a man, six inches tall; a small plastic figure to introduce doctors to 'DIURIL,' a new drug which controls the body's fluid content." The figure had to be fluid-filled and transparent to show the internal organs.

How did Nosco "Can Do" make a man? First we built a prototype by hand, then refined the design many times to facilitate volume production. The figurine is molded of cellulose propionate plastic in a Nosco-designed, two-unit mold. Each finished figure contains five parts. Nosco's finishing department painted the tiny heart, lungs and

kidneys, hot-stamped the trade name, cemented the internal organs, assembled the front and back body sections, filled the figure with fluid to a pre-specified level, cemented the plug in place, packed both individual and shipping cartons . . . and we had our man! *Rate of assembly: 3000 per shift!*

The toughest part of Nosco's job was to prevent leakage. Here's how successful we were: Nosco quality control delivered over 99.9% non-leaking, *perfect* pieces. Nosco likes tough jobs . . . likes to turn *your* brain-child into reality in practical plastics. For more information about Nosco "Can Do," just write or call.

**NOSCO plastics, inc. • erie 1, pa.** *World's largest injection molding plant*

For More Information Write No. 204 on Inquiry Card—Page 32

ALL NEW ... AND

Shock  
Resistant!



## Hoover pillow blocks with ductile cast housings

Hoover introduces a new, economical pillow block ball bearing unit with cast housing of ductile material that absorbs shock and vibration, assuring long bearing life. It is designed to carry light loads at normal speeds.

The unit contains a pre-lubricated bearing featuring ultra-smooth *Hoover Honed* raceways and a perfectly matched set of *Micro-Velvet* balls, a guarantee of unexcelled quality. Known as the E D series, these new pillow block bearings are available in shaft sizes from  $\frac{1}{2}$ " to  $1\frac{3}{16}$ ".

Hoover also offers a cast iron pillow block bearing for light to medium load conditions, plus a wide range of flange and machine units.

WATCH OO HOOVER!

**Hoover**

**BALL AND BEARING COMPANY**

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Please send new Bulletin 106, which describes Hoover  
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## How WOLVERINE TUBE Helps Westinghouse Say:

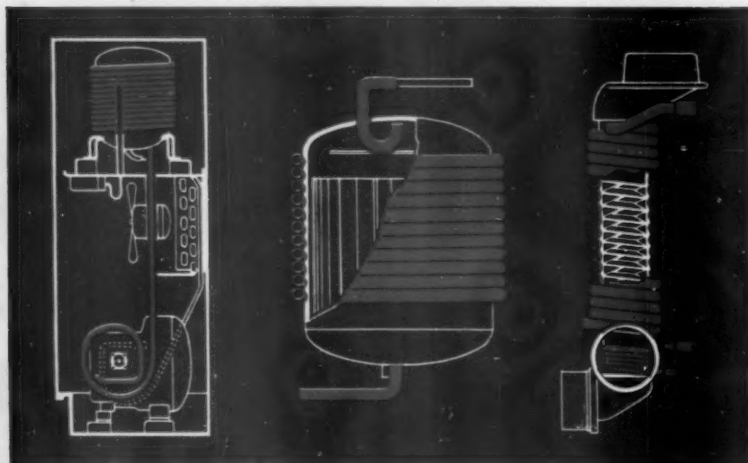
# "YOU CAN BE SURE ... IF IT'S Westinghouse"

Wolverine copper tubing is an important component in the seemingly endless stream of water coolers, beverage coolers and dehumidifiers pouring from the Springfield, Mass., plant of Westinghouse Electric Corporation.

In describing its refrigeration systems, Westinghouse says—"Refrigerant flow controlled by capillary tube. No moving parts." The capillary tube Westinghouse refers to is Wolverine Capilator®—a tiny, plug-drawn tube manufactured to extremely close tolerances, expressly for precision control in the metering of gases and liquids.

Wolverine, is of course, widely recognized for outstanding tubemanship. Each year Westinghouse uses many miles of Wolverine commercial refrigeration tube. This rigidly quality controlled product is plug drawn to insure clean mirror-bright interior surfaces. To maintain this bright surface the tube is annealed in a reducing atmosphere. It is thoroughly inspected on both ID's and OD's to insure consistent, top quality!

Meeting the tubular needs of leading American manufacturers such as Westinghouse is Wolverine Tube's main objective—the very reason for its existence. If your company uses copper or aluminum tubing . . . or tubular-shaped parts why not specify Wolverine. You'll be in select company indeed. Wolverine's Tubemanship Book tells the complete story. Write for a copy—TODAY.



Westinghouse Hermetically-Sealed  
Refrigeration System

Westinghouse Storage-Type  
Evaporator

Westinghouse Pre-Cooler  
Super Sub-Cooler

These three drawings are typical of the areas where  
Wolverine tube is used in Westinghouse products.

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### WOLVERINE TUBE

DIVISION OF  
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Manufacturers of Quality Controlled Tubing and Extruded Aluminum Shapes

PLANTS IN DETROIT, MICHIGAN, AND DECATUR, ALABAMA.  
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See Wolverine's exhibit at the 14th International Heating and Air Conditioning Exposition, Philadelphia, Pa., January 26-29.

For More Information Write No. 206 on Inquiry Card—Page 32

PURCHASING

## Highlights of This Issue

### ✓ Small Company Buying: A Big Job

This issue features the small company purchasing department, its problems and their solutions. Before any hair-splitting arguments come up, we want to make one thing clear: by small departments, we mean those with relatively few buyers (from 1 to 6) and with annual purchases of less than \$10 million. To put it another way: those departments that are not in a position to hire specialists: the buyer or P.A. has to be both the specialist and generalist. Four stories describe various successful purchasing operations in small departments: materials management (page 69); teamwork between purchasing and production (page 71); cutting clerical costs (page 74); and inventory control (page 77).

### ✓ But Is It Recognized?

The articles described above deal with successful purchasing operations in companies where the P.A. definitely has management recognition. But how about the thousands of other small buying departments? Do they get the recognition they deserve—or think they deserve? How can they improve their efficiency and boost their status? Several hundred of your fellow P.A.'s speak out on these and other questions in our regular Purchasing Opinion Poll (page 15). Check your opinions and experiences against theirs. You may find that you are better (or worse) off than you think.

### ✓ More Help For P.A.'s

The series of authoritative articles on specialized aspects of buying that have proved so popular continue in this issue. The second of Spencer Smith's group on economic ordering—"When Does It Pay to Run Out of Stock?"—appears on page 79. Lawyer-Buyer Paul Johnson offers some points on "What P.A.'s Should Know When They Break Contracts" on page 87. Ted DuMond presents the latest in his series on buying fabricated metal parts—this time on extruded shapes (see page 84). And Eugene Page offers another of his thoughtful examinations of purchasing's role in business in his discussion of long-range planning (page 89).

### ✓ The Inside On Business

Do you keep up to date on our Straws in the Trade Wind (page 7)? These brief, authoritative reports will tip you off on new developments in markets, labor, business policy, technology, etc. The number of inquiries these Straws draw indicates they're watched carefully. Be sure to check them now for an inside, expert look at what's new in business.



**"THIS LUBRICANT  
SAVES US MONEY  
BY REDUCING  
LAY-UPS, PARTS  
REPLACEMENTS  
AND LABOR"**

says INTERSTATE DRESS  
CARRIERS INC.  
of New York and Leighton, Pa.

"If we were to state the percentage of savings we have made since using a LUBRIPLATE Lubricant for general chassis lubrication, it might appear that we were exaggerating. But our records speak for themselves. The four years we have used LUBRIPLATE have shown an astonishing drop in steering, universal joint and spring pin parts replacements. We plan to continue to use LUBRIPLATE exclusively."

Sidney Rothman, General Manager

**REGARDLESS OF THE SIZE AND  
TYPE OF YOUR MACHINERY,  
LUBRIPLATE GREASE AND  
FLUID TYPE LUBRICANTS WILL  
IMPROVE ITS OPERATION AND  
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LUBRIPLATE is available in grease and fluid densities for every purpose... LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.



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on Inquiry Card—Page 32

You find Gates Hose where anything flows  
Mackinac Bridge, world's longest sus-  
pension bridge, connects upper and  
lower peninsulas of Michigan. Be-  
cause reliability of equipment is  
an important factor in the grout-  
ing operations, Gates Water and  
Air Hoses were used.

PHOTOS COURTESY MACKINAC BRIDGE AUTHORITY

**Gates Air Hose  
helps build bridge  
"that couldn't be built"**

TPA 304A

Industry everywhere depends upon Gates Industrial Hose to provide air, water, steam, oil and suction for every type of application, including some of the toughest jobs in the world.

Actually there are *tens of thousands of miles* of Gates Hose in daily use—every type and size from air hose the diameter of a pencil to petroleum hose as big as the mains in city streets.

Back of the world-wide acceptance of Gates Hose is a continuing program of *specialized* hose research at the multi-million dollar Gates Research Center staffed by more than 200 chemists, physicists, engineers and technicians.

It is the aim of this *specialized* research to increase hose utility and life, and to lower industry's annual hose costs.

Because Gates Hose is so widely preferred, it is quickly available from leading distributors in all industrial centers in the United States and in 90 countries throughout the world...and its outstanding performance is guaranteed by the *World's Largest Maker of V-Belts*.

**Gates 18HB Air Hose**, with oil resistant tube and abrasion resistant cover, gives exceptional performance on all heavy duty air usage. This popular hose—one of many in Gates full line—is always available from your nearby Gates Distributor.

The Mark of *Specialized* Research



The Gates Rubber Company • Denver, Colorado

# Gates Industrial Hose

Made in a Full Range of Types and Sizes

For More Information Write No. 208 on Inquiry Card—Page 32

PURCHASING

# Purchasing Points the Way For Public Administrators

---

THE Citizens Budget Commission, Inc., of New York City, is dedicated to the cause of economy and efficiency in municipal government, with the ultimate objective of achieving good government at minimum cost. This goal obviously embraces the whole range of municipal services and activities, implemented by administrative policies and specific operating procedures. In seeking its goal, the Commission is alert to all ideas and techniques, from whatever source, that can be adapted to contribute to this end.

The latest bulletin of the Commission explores the possibilities of value analysis techniques, as developed and practised in industrial purchasing, in relation to the broader field of value in municipal services. It finds those possibilities to be enormous, substituting for industry's profit incentive the governmental goal of finding "an optimum balance between services and taxes." It finds the idea thoroughly practicable, too. For while the application of value analysis principles to governmental operations would be pioneering, it would scarcely be experimental in the light of industrial experience and results.

We are gratified to note that this study was prompted largely by the editorial suggestion in the 1958 Value Analysis edition of *PURCHASING Magazine*, pointing out the broader implications of the value analysis principle. Quoting further from the article by J. E. Padovani (Columbia-Geneva Steel Division, U. S. Steel Corporation) in the same issue, it shows that the organization and methods of a good industrial value analysis program are directly applicable to the operation of a similar program in government.

The CBC proposal regards value analysis in the procurement of supplies and equipment as only a starting point. It goes on to call for value consciousness, the analysis and appraisal of services, operations and results, all along the line, in every phase of municipal activities. It concludes: "It is the job of central management, however, to introduce the system, instill cost-consciousness, pass on major policy questions raised as a result of value analysis, develop incentives and bestow rewards. The Office of the City Administrator or, indeed, that of the Budget Director, would be well suited to add value analysis to the arsenal of weapons against waste and extravagance."

This is an important and beneficial contribution of purchasing to the public welfare. It opens the way for a more personal public service, too, as purchasing agents—individually or as association groups—share their practical knowledge of value analysis with those who are responsible for the local administration of government.

*Stuart F. Henrity*

# Purchasing Week

McGraw-Hill's National Newspaper of Purchasing

Vol. 1 No. 41

New York, N. Y., October 13, 1958

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\$6 A YEAR U. S. AND CANADA \$25 A YEAR FOREIGN

P.A.'s Hit Back  
Steel Industry

## Financing Inventories To Become Tougher

Public Buyers

Washington—The cost of borrowing money is going up. Eventually it will get tougher to obtain financing for inventory growth although bankers appear to have plenty of money for that type of borrowing now.

This is the credit outlook from a purchasing point of view over the next six months as seen by government officials specializing in finance. It stems from a drive by the Federal Reserve and Administration to halt inflation by tightening credit.

Reports from bankers around the country indicate general agreeability toward short term loans, but a growing reluctance for long term, capital goods type of borrowing already's developing but not in all areas. So far inventory has not been

## ... Steel users may find tighter inventory controls the best hedge

"Let the other fellow carry the inventory" is a well-tryed business principle that is taking on added significance for many manufacturers today.

As featured in a recent issue of PURCHASING WEEK, the cost of borrowing money is going up. Over the next six months, inventory growth financing will get tougher. Even now, the publication pointed out, there's a growing reluctance by bankers to make long-term, capital-goods type loans. The newspaper concluded that interest rates, too, are heading rapidly toward the high levels reached during 1957's tight-money period.

Faced with these new complications, steel buyers may well find continuance of recession-born, modified inventory policies the best hedge against tight money and higher interest.

For example, during the recent slump many companies proved to themselves that the varied facilities of steel service centers cut costs all

along the line. They avoided long-term commitments and substantially reduced their need to borrow money. They released precious working capital for more productive purposes... freed valuable storage space... reduced handling costs and cut scrap loss, interest, insurance, taxes, etc.

This kind of cost-conscious buying is especially sound when you consider the unusually broad scope of Ryerson stocks, and the speed and dependability of Ryerson services. Buying cut-to-size steel—any kind, shape, size and quantity—gives you complete flexibility to meet quick shifts in production schedules. And you have the added assurance of getting uniform, high-quality steel—unequaled Ryerson certified quality.

Your Ryerson representative is well qualified to review the facts and help you get the maximum value for your steel-buying dollars. Call him any time to analyze your requirements with you.



## RYERSON STEEL®

Member of the Inland Steel Family

Principal Products: Carbon, alloy and stainless steel—bars, structurals, plates, sheets, tubing—aluminum, industrial plastics, metalworking machinery, etc.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE • CINCINNATI • CLEVELAND • DETROIT • PITTSBURGH • BUFFALO • INDIANAPOLIS • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

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Purchasing Agent Allen (left) reports to Assistant Treasurer Richard Thayer. Thayer buys all mica for the company.

## Purchasing's Status Doesn't Depend on Size

*Capable people often get stymied in big companies. As a one-man show in a smaller firm, a P.A. may stand a better chance. But he must show imagination and initiative before he gets management's nod as a materials manager.*

THE MATERIALS handling equipment Russ Allen buys is used to move a mineral produced and marketed almost as primitively as it was a century ago. The MRO supplies he buys help maintain a 150-year old building with walls three feet thick.

Allen's job isn't as ominously old-fashioned as it sounds. Actually, he's purchasing agent for a modern, highly competitive firm, The Macallen company.

Macallen is a major supplier of insulating materials to the electrical industry. The mineral it uses in great quantity is mica, imported primarily from India where it is prepared by hand labor.

The old building is part of a textile mill converted and modernized by Macallen when management decided a few years ago to move out of the city and into the country. The new plant is in Newmarket, N.H., a little town deep in one of New England's most beautiful and historic sections.

These contrasts of the new and the old in Macallen's operations are more or less accidental. But its theories of management and organization are quite deliberately modern. Purchasing, for example, is a formally organized function. Although the purchasing depart-

Schedule for delivery: Week of 6/23/53

CONFIRMATION

IN ACCEPTING THIS ORDER YOU AGREE TO THE TERMS AND CONDITIONS ON THE FACE AND REVERSE SIDE

THE MACALLEN CO. INC. By \_\_\_\_\_  
R. S. THAYER, Director of Purchases

ACKNOWLEDGMENT OF PURCHASE ORDER  
THIS ACKNOWLEDGMENT IS A PART OF OUR ORDER AND MUST BE RETURNED IMMEDIATELY IF THE MATERIAL WILL NOT BE SHIPPED WITHIN 3 DAYS AFTER RECEIPT OF THIS ORDER.

THIS FORM HAS BEEN DESIGNED TO FIT A STANDARD NO. 1 WINDOW ENVELOPE FOR YOUR CONVENIENCE

THE MACALLEN COMPANY INC.  
PURCHASING DEPT.  
NEWMARKET, N. H.

PURCHASE ORDER N° 2100

DATE \_\_\_\_\_

THIS ORDER HAS BEEN ENTERED UNDER OUR NO. \_\_\_\_\_

Will SHIP PART \_\_\_\_\_ DATE \_\_\_\_\_

Will SHIP COMPLETE \_\_\_\_\_ DATE \_\_\_\_\_

VENDOR'S NAME \_\_\_\_\_

BY \_\_\_\_\_

Four-part purchase order has unusual acknowledgment. Form has been designed so that it can be detached easily and slipped into window envelope without need for further addressing.

ment is made up only of Richards, Thayer and Allen, and one secretary, their duties cover a broad range of direct and advisory responsibilities.

Mr. Thayer, Director of Purchases, also has the titles of Assistant Treasurer and Assistant to the General Manager plus the responsibilities of real estate, insurance, personnel, plant safety

and plant engineering. He purchases all the mica splittings and shellac, two of Macallen's basic production commodities and is considered one of the top specialists in this country on mica splittings. Thayer's paper on "How To Buy Mica" won him an award in the National Association of Purchasing Agents competition in 1949.

ARTICLE:		REORDER AT:		SUPPLIERS:	
UNIT:		ORDERED		RECEIVED	
DESCRIPTION		ARTICLE		TYPE	
In rolls		.001" MYLAR Polyester Film,		Type A	
3 lb. per inch of width					
QTY	DATE	QTY	DATE	QTY	DATE
1 6/2	2100	15 rls		1 6/27	1710# 2.00 lb
SUPPLIER CODE		SUPPLIER CODE			
1 E. I. duPont de Nemours & Co.		3			
The Macallen Co. Inc. PURCHASE RECORD		BASIC PRODUCTION MATERIALS			

Switch to purchase record cards (above, front) from ledger sheets (above, back) made for greater speed and efficiency in handling commodity data. Cards are kept within easy reach in an electric rotary file. Bulky, awkward ledger volumes have been eliminated.

<p>A &amp; P Corrugated Box Corp. 205 School Street Gardner, Mass. Tel: 66-3600 Terms: 1/10/30 Traffic Mt: Their truck Supplier Of: Corrugated Cartons Salesman: Maurice Mosher Phone: Sam Poppel</p>	<p>Stockpile Transp. rial Hdg. Equip. Publicover sealide</p>
<p>A &amp; S Canvas Company 10 Silver St. South Boston 27, Mass. Tel: Andrew 8-0326 Terms: 2/10/30 Traffic Mt: Dearborn's Express Supplier Of: Repairs snow Mach. Belts Truck Covers, Tarpsoline Salesman: None Phone: Adolph Grandell</p>	<p>Corp.</p>
<p>Abrasive Products, Inc. South Dainetree 65, Mass. Tel: Victor 3-1900 Terms: 2/10/30 Traffic Mt: Union Motor Freight Supplier Of: Sanding Machine Belts Carpet Paper Salesman: Dick White Phone: Mr. Harrington</p>	<p>Corp.</p>

All essential data on every supplier is kept in handy looseleaf notebook readily available to P.A. and secretary.

Russ Allen, purchasing agent, has duties that take him into these areas:

**Purchasing and Inventory Control.** Allen is responsible for the purchase of all maintenance and production supplies, with the exception of mica.

Allen determines order quantities and frequency on the basis of historical usage and current sales trends. (He gets a copy of every sales order.) Production materials are generally bought on a 13-week usage basis.

**Traffic and Transportation.** As *de facto* traffic manager, the purchasing agent is responsible for determining the method of transportation (and selection of carrier, when it applies) on both incoming and outgoing shipments. All transportation invoices are processed by purchasing.

Information on all available forms of transportation—including rate schedules—is kept in one booklet on Allen's desk for quick reference.

**Packaging and Materials Hand-**

ling. Materials handling is not so gigantic an operation at Macallen that it requires a special department. Nor is packaging of mica products so complex that a special staff of engineers and designers is needed. Yet both are vital activities. Production, engineering, sales and purchasing all have a special interest in them and work cooperatively to see that they're carried out most efficiently at lowest cost. Allen, for example, has effected some notable cost reductions through re-design of cartons used to ship mica products. In making the changes, he worked closely with suppliers and with Macallen's sales and production departments.

### No Empire Needed

Allen thinks too many purchasing agents more or less give up on advancing themselves because of the "What can one man do?" attitude. "You don't need an empire to carry out the materials management concept," he says. It can be done in a one-man department. I think the key points for the small-company purchasing agent to remember are these:

"Organize your work in a simple and efficient way." (All Allen's basic records—purchase record cards, inventory data, transportation information, supplier card file, are all within a few feet of either him or his secretary. All forms, incidentally, were designed by Allen.)

"Don't be afraid to delegate responsibility." (In a brief but comprehensive written memo on procedure, Allen spells out when and how orders can be issued in his absence.)

"Use an imaginative, cooperative approach in trying to help others. They'll work with you once you prove you're trying to cut costs—not cut into their authority."

With that basic approach, he feels, you can't help but get management's go-ahead in broadening purchasing's scope and accomplishments. His theory has already been proved in The Macallen Company.

Stephen J. Sovis came to Titeflex from Gemmer Mfg. Co., Detroit. He also had purchasing and production experience with a number of other companies.



## Better Planning Means Better Buying

*Inventory control, planning, purchasing and customer service are all improved when buying and production operations are coordinated.*

**W**HEN THE purchasing department of Titeflex, Inc. was being reorganized last year, one of management's first demands was for greater coordination between purchasing and production.

The demand has been met successfully, with much of the credit due to a series of changes put into effect by Stephen J. Sovis, director of purchasing. Aiding Sovis—who came to Titeflex with a varied background in purchasing and production—were veteran department staff member Ray Brennan, and Richard W. Handel who has been purchasing agent for a machine tool firm.

"In a big company," according to Sovis, "you generally have planners assigned to buyers, so there's some coordination between production and purchasing. In a small plant you have three or four people getting one item—brass bar stock, for example. There's very little coordination and you often find yourself buying far below a good break point.

"At Titeflex we consolidate planners' requests and channel them through material control to

purchasing. We're getting some very interesting—and profitable—results."

These are some of the results Sovis is talking about:

- A big reduction in inventory and elimination of many obsolete items;

- A saving of 18% in one quarter on raw materials through quantity buying;

- A two-thirds reduction in delinquencies on customer orders—with performance improving all the time;

- Flexibility and speed in switching back and forth between make and buy.

- Better performance from vendors.

This kind of accomplishment is vital to Titeflex right now. The 45-year old company, now part of Floyd Odum's Atlas Corporation is on the move after a post-Korean War sales slump. It's making a bid to boost its sales of flexible tubing, couplings and connectors by 50%—to close to \$10 million—by mid-1959.

A key technique in the Titeflex system is the use of linear charts

to plot anticipated needs against current inventory (of about 1500 raw material items). The charts (see illustration) show part number, lead time, previous usage, amount on order and in stock. Inventory in terms of months is indicated by a green line extended over a 5-month period. Estimated usage over the same period is indicated by a red line. The chart is revised every quarter, taking in one month before and one month after the quarter.

The chart enables the planner to determine his requirements and material control to make up requisitions based on the best break-point. "By studying the chart we were able to make an 18% saving in the first quarter of this year" reports Titeflex Purchasing Agent Richard Handel. "It showed us where we could build up tonnage and at the same time keep our inventory within bounds."

The graphic inventory record has also helped purchasing get rid of a lot of obsolete material. A glance at the chart might indicate that an off-size item that had been lying around for a long time could

TYPE OF MATERIAL	PROCUREMENT TIME	PREVIOUS MONTHLY USAGE	AMOUNT ON ORDER	STORES BALANCE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	AMT. EACH MONTH
Cold Rolled Steel Rod Hex AMS 5022										
11/16	62043	0	0	180						
1"	61998	6	0	1183						1/5
1-1/16	62009	0	0	8						
1-1/8	62042	0	0	736						
1-1/4	62050	0	0	226						
1-1/2	61995	0	0	737						
2-1/2	62054	2	0	401						1/5
Steel Hex AMS 5024										
1-1/2	68602	63	0	232						2
Cold Rolled Steel Hex TMM 109										
3-1/2	62038	0	0	0						
Cold Rolled Steel Hex TMM 116										
1-9/16	62034	0	0	0						

Linear charts on inventory and requirements of all raw materials aid planners, material control, engineering and purchasing. Stores balances are graphically illustrated by colored line. Requirements are plotted against these.

TITEX, INC. - SPFLD., MASS.										MASTER INVENTORY CONTROL RECORD										CARD NO.	
DATE		REFERENCE NUMBER		REQUIREMENTS		ORDERS		RECEIPTS		DISBURSEMENTS		SHIPMENTS		INVENTORY							
DATE	REFERENCE NUMBER	QUANTITY	ACCUMULATED	QUANTITY	ACCUMULATED	QUANTITY	ACCUMULATED	QUANTITY	ACCUMULATED	QUANTITY	ACCUMULATED	QUANTITY	ACCUMULATED	QUANTITY	ACCUMULATED	IN STOCK	ON ORDER				
9-8	148, 5700				1540		1540									1540					
12-2	166, 13847							1540		300	300					300	1,240				
2-12	15116	50	350					1540		50	350					350	1,190				
MAR-58	15116																				
5-25	16677	500	850																		
6-19	16677	50	900																		
MAY 21 58	16819							1540		80	430					430	1,110				
MAY 21 58	16677							1540		500	930					930	610				

Master inventory control record, posted by machine, is replacing old type hand-posted inventory card. Use of NCR machine, obtained by purchasing from accounting, has reduced clerical work enormously.

easily be substituted for a new requirement. If engineering approves the switch, the alternate material—often purchased at a

price way below the current market—is used up. Once an item of this type is drawn from the dormant bank, effort is made to

avoid reactivating it.

When there's close liaison and mutual understanding between purchasing and production it's a lot

easier and a lot faster to decide whether to make or buy a given item, according to Sovis.

As planners pull parts on a job, a decision has to be made whether they're to be kept in the shop or brought in from outside. "What you anticipate often doesn't occur," says Sovis, "so you have to be on top of the situation all the time. When a vendor on a certain part is delinquent and it looks as though you won't make your contract, you've got to be able to move fast.

"We look at it this way: you've got to concentrate not on a delivery date, but when you can ship it. We want to get the stuff out and the money in. We've got the equipment to make certain parts under our control. If we need that part to get a big or important order out fast, we'll make it. And, of course, the reverse is true. If we're overloaded, we shift from the shop to a supplier."

This flexibility makes it easier to level out peaks and valleys in machine loading and realign plans and schedules for top efficiency. It has proved of tremendous help to the sales department, with which

Sovis and his group work very closely.

#### Keep Vendors on Toes

The coordinated set-up strengthens the company's hand with vendors, too. Purchasing has called them in personally to tell them face-to-face: Titeflex has big plans that they can share in—if they perform. They get straight talk on purchasing's desire to buy in quantity, the absolute need for sticking to delivery dates, and Titeflex standards on inspection and quality control.

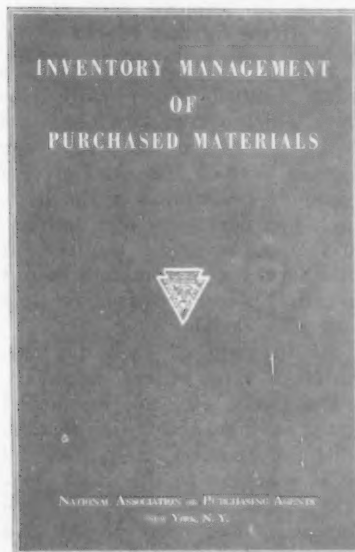
New vendors, particularly, have one point impressed on them: it doesn't make sense to pay for two inspections. So Titeflex requires that the vendor inspect the way they want him to and supply a certificate of inspection. (This certification requirement is made a part of every order.) An AQL (acceptable quality level) of about 1% is thrown on the item and all Titeflex has to do is pull a sample on the shipment.

Bringing in Sovis to head up purchasing and production control is one of several determined moves Titeflex has made in its



**Purchasing Agent Richard Handel** was formerly P. A. for Van Norman Machine Co. He is a former president of the Western Mass. Purchasing Agents Association.

comeback campaign. It's gunning for markets with new management and new products (including the new Springfield 110 teflon high-pressure, extreme temperature hose). The new purchasing-production control set-up is a potent weapon in the campaign.



"Inventory Management of Purchased Materials," the latest booklet published by the National Association of Purchasing Agents, should be required reading for all

## What You Should Know About Inventory Management

profit-conscious P.A.'s. A consensus of the best information on the subject, it outlines principles helpful to large and small purchasing departments.

Inventory is an asset. As such, it must be managed properly. The booklet explains the objectives of inventory management and how to achieve them. Estimation of future requirements, order cycling control procedure, and selective control planning are outlined in detail.

Varying control procedures are recommended for different items in your inventory. High value and critical items require almost continuous control. Low value items may be put under a low cost, two-bin type of system. Medium value items can be placed

under an economic ordering quantity (E.O.Q.) system.

The booklet goes into considerable detail in explaining the E.O.Q. system. This includes methods of utilizing the E.O.Q. formula, determination of inventory carrying charges, and calculation of safety stock.

While not easy reading, "Inventory Management of Purchased Materials" is a valuable tool for all modern purchasing departments. The cost savings realized will be well worth the effort expended.

The booklet was prepared by Howard L. Timms, associate professor of management, Indiana University, School of Business. N.A.P.A. members may obtain copies by writing the National office, 11 Park Place, N.Y.C.

# Machine Posting Inventory Records

*Switching from manual to machine posting inventory records  
more than paid off for this purchasing department.*

**By John Van Deventer**

ONCE AGAIN a machine has replaced a man. This time in the purchasing department of Caloric Appliance Corporation, Topton, Pa. The man is a clerk who formerly worked full time manually posting perpetual inventory records. His replacement is one of the NCR bookkeeping machines used by Caloric's accounting department. Now all inventory posting is done on this machine by the accounting department.

As in most cases where a man is replaced by a machine, it's all for the best. Says Charlie Kolkebeck, director of purchases for Caloric: "Machine posting has given us more time to do a better purchasing job. Instead of a purchasing clerk working full time at manual posting, one of the girls in accounting posts by machine. It only takes her about four hours a day. This, in effect, gives purchasing an extra hand to help with more important purchasing functions."

## **Fewer Errors**

Caloric had been using a visible card system to manually post inventory records. Like most manual systems it was subject to mathematical errors.

"Machine posting has proven to be far more accurate," says Kolkebeck. "With manual posting," he explains, "you're bound to have errors in addition and

subtraction or post in the wrong column. This often results in rush orders, costly expediting, and worst of all, lost time in the production department. Machine posting combined with a quick check by purchasing just about eliminates errors."

Another big advantage of machine posting is that it enables purchasing to cut inventory. Machine posting keeps purchasing promptly and continuously advised of any item that drops below the re-order or follow-up level. This, plus the reduction in errors, means that re-order levels can be lowered, and consequently inventories can be reduced.

"It's also easier to develop inventory information with machine posting," says Kolkebeck. "Historical usage information and dollar fluctuations in inventory, for example, can be obtained much faster by machine."

Considering that Caloric's annual purchases run around six million dollars and that its inventory turns 6.5 times a year, it's not hard to see the significance of the advantages claimed for machine posting.

## **Management's Thinking**

Fortunately, switching to machine record-keeping didn't require the purchase of a new machine. Since Caloric's accounting department used NCR bookkeep-

ing machines, management decided to adapt the equipment to the needs of the purchasing department. National Cash Register was asked to help with the programming which took several weeks.

Machine posting is now used for all of Caloric's inventory. "It works equally well on purchased parts and finished goods," says Kolkebeck.

## **How System Works**

Key to the new system is a stock control ledger card (see cut) which serves as a perpetual inventory record for every item carried in stock. The card gives a complete description of the item, including part name and number, and manufacturer's number. It also serves as a complete record of orders placed, releases, receipts and withdrawals.

At the end of each day, records of new orders, receipts, withdrawals, etc., are forwarded to the machine accounting section. This information is posted by NCR machine to the stock control ledger card. When the information has been posted, the operator punches a key and the machine automatically prints the following information on the stock ledger card:

1. Month's usage.
2. Balance on order.
3. Suspense balance on order.

# Cuts Clerical Time 75%

- Prevents stockouts
- Cuts inventory 20%
- Eliminates errors

The amount ordered for release.

4. Balance on hand.

(The machine automatically checks the accuracy of these figures.)

The operator then punches in the re-ordering and follow-up figures for the item being posted. The machine automatically compares the re-order and expediting points with the sum of balance on hand and balance on order. If either figure is too low—that is, if the sum of balance on hand and balance on order is less than the re-order point; or, if the balance on order, is less than the follow-up point—the machine automatically advises the operator. The machine moves to the far right side and its carriage opens automatically. The operator then inserts a requisition ticket, (see cut) which is used to inform purchasing that an item needs to be expedited or re-ordered.

Part number and description of the item are then typed on the requisition ticket. When the operator presses a key, the machine automatically prints in red on the ticket the number of units below follow-up level or the number of units below re-order level. In addition, the machine automatically prints the following information on the requisition ticket:

1. Number of pieces used for the month to date.



Charlie Kolkebeck: "Machine posting gives us more time to do a better purchasing job."



Machine posting of perpetual inventory records is performed by this NCR accounting machine. The operation is so automatic that any operator can do the posting with a minimum of instruction. Operators average better than one complete posting every 35 seconds.

PART NO: 10-186  
 SIZE : \_\_\_\_\_  
 FINISH : \_\_\_\_\_  
 MFRS NO: A16352

ITEM: CAP. BURNER

FOLLOW-UP  
5,000  
 RE-ORDER  
7,500

O.OO PROOF	DATE	PART NO.	REFERENCE	ORDERS		RECEIPTS	WITH- DRAWALS	BALANCES TO DATE				PROOF TOTAL
				RELEASED	SUSPENSE			MO. USAGE	ON ORDER	SUSPENSE BAL. ON ORD	ON HAND	
0.00	JUL 10 51	10186	4.876	10,000				0	10,000	0	0	20,186
0.00	JUL 15 51	10186	2.318			8,000		0	2,000	0	8,000	20,186
0.00	JUL 18 51	10186	18.112				5,000	5,000	2,000	0	3,000	15,186
0.00	JUL 18 51	10186	2.515			2,000		5,000	0	0	5,000	15,186
0.00	AUG 8 51	10186	5.086	7,500	7,500			5,000	7,500	7,500	5,000	30,186
0.00	AUG 8 51	10186	19.225				2,500	7,500	7,500	7,500	2,500	27,686
0.00	AUG 12 51	10186	5.125				2,500	10,000	7,500	7,500	0	25,186
0.00	AUG 12 51	10186	RELEASE	5,000	5,000	0		10,000	12,500	2,500	0	25,186
0.00	AUG 12 51	10186	6.376			7,500		10,000	5,000	2,500	7,500	25,186
0.00	AUG 12 51	10186	7.812				1,500	11,500	5,000	2,500	6,000	23,686
0.00	AUG 31 51	10186	8.212			5,000						
0.00	AUG 31 51	10186	8.956				5,000	16,500	0	2,500	6,000	18,686
0.00	AUG 31 51	10186	9.037				1,500	18,000	0	2,500	4,500	17,186

Key to the machine posting system is this stock control ledger card. The card serves as a perpetual inventory record for every item carried in stock.

REQUISITION TICKET						
PART NAME & NUMBER	USAGE	ON ORDER	SUSPENSE BAL. ON ORDER	ON HAND	RE-ORDER LEVEL	FOLLOW-UP LEVEL
	16,500	0	2,500	6,000	7,500	5,000
			1,500 CR			1,000
BELOW RE-ORDER LEVEL (CR)      BELOW FOLLOW-UP LEVEL (CR)						

VENDOR:  
 DISPOSITION:

CALORIC APPLIANCE CORPORATION

NCR-14

Accounting uses this requisition ticket to tell purchasing when an item needs to be expedited or re-ordered. The NCR machine automatically prints on the ticket the number of units below follow-up level or the number of units below re-order level.

- The balance on order for immediate release.
- Balance on order for future release.
- Balance on hand.
- Re-order level.
- Follow-up level.

After the requisition ticket has been prepared, it is sent to purchasing along with a traveling requisition.

The traveling requisition gives purchasing a complete history of the monthly usage of a particular item. It also includes a history of

past purchases including vendor names and lead times.

The accounting department maintains the historical usage section of the traveling requisition. At the end of each month accounting transfers the total monthly usage figure from the stock ledger card to the traveling requisition.

#### All the Information

The requisition ticket and the traveling requisition give purchasing all the information it needs for expediting or re-ordering an item. The forms go to purchasing

in two categories: those requiring follow-up, which go to the expeditor; those requiring re-ordering, which go to the buyers.

"The machine system of keeping perpetual inventory records has been received with enthusiasm by purchasing and all others who need inventory information," says Kolkebeck. "In addition, we've found that a machine operator can average better than one complete posting, including preparation of the requisition ticket, every 35 seconds. The operation is so automatic that very little instruction is needed."



# Telephone Order Form

## Saves 9 Cents Per Order

**T**HERE'S A midwestern metalworking company that's saving nine cents on every local phone purchase it makes. Even more important—the company has virtually eliminated paperwork on local purchases.

How's it done? Easily. Purchasing just eliminated the purchase order. Instead it uses a simple form (see cut) that serves as both requisition and purchase order. Here's how the system works:

When a local purchase is to be made, the requisitioner fills in the description and quantity and sends the form to purchasing. Over the phone, the buyer gives the order number, quantity and description information, and checks the price with the supplier. The buyer then asks the supplier to repeat this information back to him. When the buyer gets the price from the supplier he notes it on the form. After the order has been confirmed by the supplier, the buyer pencils in the name and address of the supplier, and gives the form to the file clerk. This is equivalent to receiving an acknowledgment copy of the purchase order from the supplier.

There are three copies of the special purchase order form: one for receiving, one for accounting, and one for purchasing's file.

In addition to the savings men-

[illegible]

**This form is used for local purchases placed over the phone. It serves as both requisition and purchase order.**

tioned, the special form has these advantages over the regular purchase order form for local orders:

(1) It eliminates the job of checking the confirmation copy of the purchase order against the file copy.

(2) Using it, orders can be placed in less time, goods delivered sooner.

While there are occasional errors resulting from the use of the special form, the errors can be adjusted easily, since the purchases are local.

The saving (based on three years of use) is figured this way: 10,000 purchase orders are placed annually. Sixty per cent of these are placed over the phone to local suppliers. Printing cost for the special form is one cent apiece; for the regular purchase order form, six cents apiece—a five cents per order savings. And, since the special order form isn't mailed out, a four cent stamp is saved on each order. Thus a total of nine cents is saved per order—or \$540 on 6,000 orders.

# When Does It Pay to Run Out of Stock?

*There are just two basic objectives in inventory management: keep stock to a minimum and prevent stockouts that affect production or sales. These objectives can be most effectively achieved by applying the simple statistical principles described in this article.*

**By Spencer B. Smith**

*Editor's Note: This is the second of a series of three by Mr. Smith on scientific inventory management. The third article, on periodic ordering, will appear in a subsequent issue.*

**T**HE PROBLEM of "when to order" under conditions of uncertain demand presents the purchasing agent with a two-horned dilemma. Ordering late will result in stock-outs, dislocations in production and dissatisfied customers. Ordering early, while reducing stockouts, can result in a substantial amount of the company's capital being tied up in inventory.

The purpose of this article will be to show how an ordering policy may be developed which will:

(1) Give a reasonable balance between protection against stockouts and inventory investment.

(2) Allocate those dollars which are invested in protective stocks in such a way that maximum benefits are obtained.

## Leadtime and Order Points

We will start by considering a method for deciding when to place an order for a single item. Later we will show how the same approach may be applied to developing a general ordering policy.

Let us suppose that there are a large number of potential customers for the item and they normally order one unit at a time. Over the past year, weekly demand has been as shown in Table I. We see that demand per week fluctuates, ranging from 1 to 16 units. Total demand for the 52 week period was 468 units. This gives an average of 9 units per week.

The order quantity for the item, determined from economic-lot tables 1, is three months' supply or 107 units. This means that we will order an average of four times per year.

We are interested in arriving at an order point which will give us some assurance that we will not run out of stock before the next shipment is received. Order point means the stock level

which will signal us that a replenishment purchase order should be issued.

We can determine what the average demand during the leadtime is likely to be. Let us say the leadtime, that is the elapsed time between deciding to order and receiving shipment, is five weeks. Therefore, the average demand during the leadtime will be: 5 weeks x 9 units = 45 units.

However, this is just the *average* and the *actual* demand will fluctuate above and below this figure. **If we set our order point at 45 units, we could expect that 50% of the times we order we would run out of stock before a shipment is received.** Therefore, if we want fewer than two stockouts per year, we will have to increase the order point above this average demand figure.

Order point can then be expressed as the sum of two components:

$$\text{Order Point} = \text{Average Demand During Leadtime} + \text{Safety Stock}$$

Table I  
Demand By Weeks for a Purchased Inventory Item

Week	Demand	Week	Demand	Week	Demand	Week	Demand
1	7	14	6	27	7	40	12
2	16	15	8	28	10	41	10
3	5	16	7	29	11	42	9
4	9	17	5	30	4	43	11
5	13	18	9	31	9	44	14
6	8	19	11	32	7	45	6
7	9	20	6	33	10	46	10
8	1	21	10	34	8	47	12
9	10	22	7	35	11	48	7
10	7	23	11	36	6	49	13
11	8	24	13	37	12	50	11
12	5	25	8	38	8	51	6
13	9	26	9	39	14	52	13

Safety stock may be defined as the average stock on hand just prior to receiving a new shipment.

### Analyzing Demand

How much safety stock we want depends upon the variability of demand. Obviously, if we knew that the demand during the leadtime would always be exactly 45 units we would not need any safety stock. If demand never fluctuated above 48 units in five weeks, we could add a safety stock of three to give us an order point of 48 and eliminate stockouts. With increasing variability, we need increasingly larger safety stocks and order points to reduce the possibility of stockouts.

Where there is substantial variability it won't usually pay to provide safety stocks large enough to eliminate stockouts entirely. Rather, we will usually try to select safety stocks that will keep the frequency of stockouts down to some acceptable level.

Variability in demand can often be described by a Poisson probability distribution. This approach is particularly useful where unit demand is not very large, but comes from a large number of customers and it is desired to keep the probability of stocking out small. For example, it is particularly adaptable to the ordering of repair parts.

One of the characteristics of the Poisson distribution is that the variability varies with the square root of the mean demand. For example,

if the average demands during leadtime for two items were 4 and 100, then it is just as likely that the demand for the first would be greater than  $4 + \sqrt{4}$  or 6 as that the demand for the second would be greater than  $100 + \sqrt{100}$  or 110. This means that as average demand increases, the safety stock required to provide a given degree of protection becomes proportionately smaller.

Let us see how well the Poisson distribution fits the actual demand shown in Table I. Using these demand figures and Poisson distribution tables<sup>2</sup>, we can make the comparison shown in Fig. 1. Since the two distributions are fairly close we can use the Poisson distribution to predict the probability of stockouts with various order points and safety stocks in this case.

### Safety Stocks

To apply the Poisson distribution we will use the following equation for safety stock:

$$\text{Safety Stock} =$$

$$K\sqrt{\text{Average Demand During Leadtime}}$$

Order point then becomes:

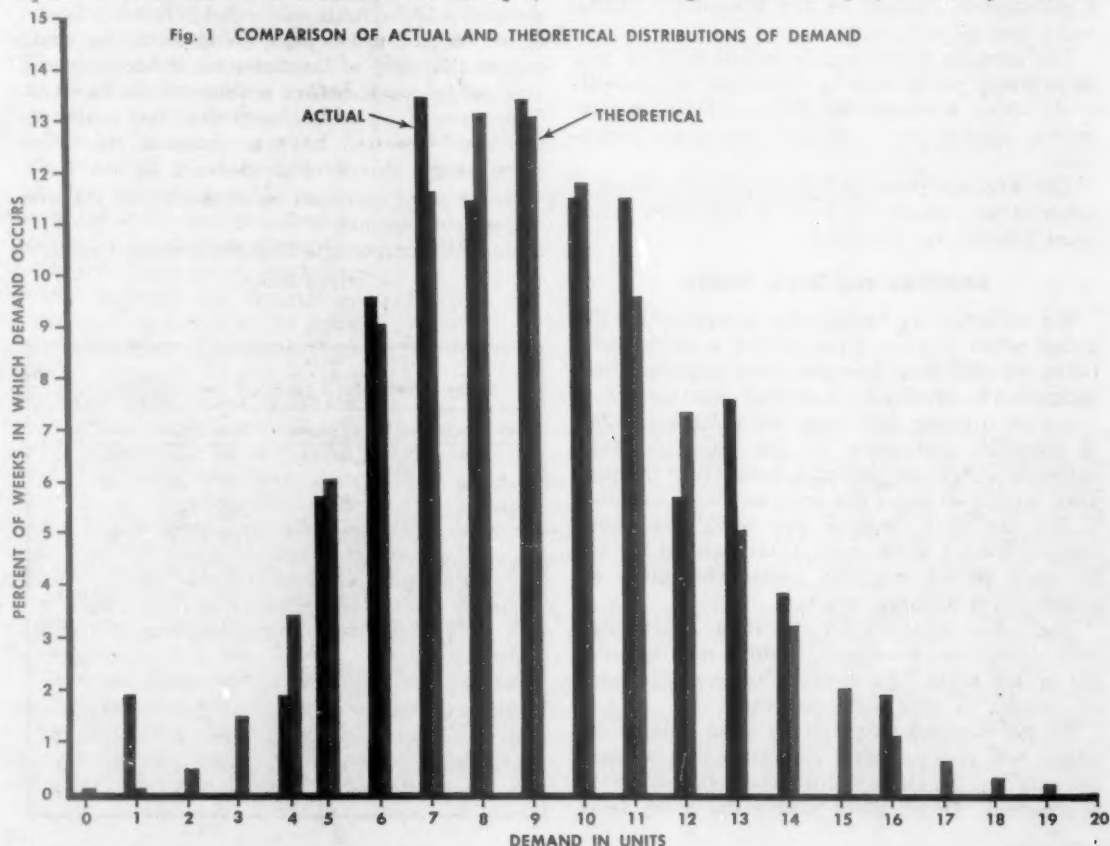
$$\text{Order Point} = \text{Average Demand During Leadtime}$$

$$+ K\sqrt{\text{Average Demand During Leadtime}}$$

In these expressions,  $K$  is a factor which we can choose to give us any desired probability of a stockout each time we order.

Returning to our example, let us say that we

Fig. 1 COMPARISON OF ACTUAL AND THEORETICAL DISTRIBUTIONS OF DEMAND



wish to limit stockouts to an average of one every two years. As we order the item every three months, in a period of two years we can expect to place eight orders. Therefore, for an average stockout of once every two years the probability of a stockout on each order should be one-eighth or 0.125. From statistical tables<sup>8</sup>, we find that we should set K equal to 1.15 if we wish the probability of demand being greater than the order point to be 0.125.

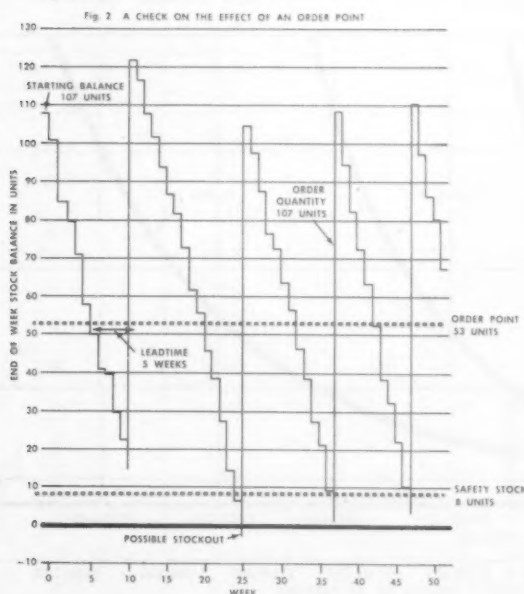
Then from the equation for order point above:

$$\begin{aligned}\text{Order point} &= 45 + 1.15 \sqrt{45} \\ &= 45 + 8 \\ &= 53\end{aligned}$$

### A Check

Now let us see what would have happened during the past year if we had used an order point of 53 units. Week ending inventory balances are shown in Fig. 2. We have assumed a starting balance of 107 units or one order quantity. Reductions in stock have been plotted from the weekly demands given in Table I. We see that the order point was passed in the 6th, 21st, 33rd and 43rd weeks, and in each case a purchase order was issued and 107 units received five weeks later.

The question is: how much would we have suffered from stockouts? The only week in which a stockout could have occurred was the 26th. At the beginning of the week the stock balance was six units. During the week we had demands for nine units and received a shipment of 107 units. If all the demands occurred prior to receiving the shipment, we would have been unable to fill immediately demands for three units. Without going to daily records we cannot be sure whether or not a stockout would have actually occurred.



Our order point was selected to protect us against having an average of more than one stockout every two years. From our check it appears that using an order point of 53 units over the past year would have given us about this degree of protection.

### Cost of Protection

Now let us see what this protection would cost us and what it would cost to provide other levels of protection.

Table II shows required safety stocks in units and dollars and the cost of carrying safety stock for various levels of protection. (We have as-

Degree of Protection	Safety Stock in Units	Safety Stock in Dollars	Cost of Carrying Safety Stock at 24 Percent
Average one stockout every year	5	\$500	\$120
Average one stockout every 2 years	8	800	192
Average one stockout every 5 years	11	1100	264
Average one stockout every 10 years	13	1300	312
Average one stockout every 20 years	15	1500	360

sumed a unit cost of \$100 and a carrying cost of 24% per year.) We see that limiting stockouts to once per year would involve an investment in safety stock of \$500 and an annual cost of carrying the safety stock of \$120. If we wished to limit stockouts to once every 20 years, these figures would go up to \$1500 and \$360.

By weighing various degrees of protection against the associated inventory investments and carrying costs, a decision may be reached as to what level of protection to select.

### Size of Order

The Poisson distribution is particularly appropriate for predicting the number of customer orders. In the example above, it was assumed that customer orders are each for one unit. Where customer orders may be for more than one unit, better results will be obtained if the equation for the order point is modified as follows:

$$\text{Order Point} = \text{Average Demand in Units During Leadtime}$$

$$+ K \sqrt{\frac{\text{Average Number of Customer Orders During Leadtime}}{\text{Average Size of Customer Orders in Units}}}$$

### Classifying Inventory Items

It is often the case that the same level of protection is not appropriate for all inventory items. In general, the following factors should be considered in deciding on the degree of protection which should be provided:

**Competition.** Good customer service and protection against stockouts will be especially warranted on highly competitive items.

(TURN PAGE)

**Customer Good Will.** For example, if you are supplying a repair part, it will be more important to prevent stockouts if a delay in filling a customer order would mean that the customer's machine will be down than if he normally carries a supply of the part and is merely replenishing his stock.

**Profit Margin.** It will be more important not to lose sales through an out-of-stock condition on items with a high profit margin.

**Substitution.** If there are other items stocked which can be substituted for the one under consideration, less protection will be required. If several items are carried differing only in color, an occasional stockout may be rectified with some paint.

**Effect on Production.** Direct materials and repair parts which, if lacking, could shut down a machine or a department will generally require a high degree of protection.

**Carrying Cost.** It will be less profitable to invest in safety stocks of large, expensive items subject to rapid obsolescence or deterioration than in small, inexpensive items that can be stored and used indefinitely. Standard hardware, for example, will usually fall in the latter category.

Considering these factors, all inventory items may be grouped into, say, three classes as follows:

- Class I — High protection
- Class II — Medium protection
- Class III — Low protection

Once this classification has been made, analyze the costs of providing various levels of protection for each class of items. A sample study is useful where the number of items is large. A graph of this analysis might appear as in Fig. 3.

Using this graph, management might, for example, decide to invest \$393,000 in safety stock for Class I in order to limit stockouts to an average of one per item every ten years, \$450,000 for Class II for a protection of one stockout per item every five years, and \$250,000 in Class III for one stockout per item per year. This policy decision could then be summarized as shown in Table III.

#### A Table of K Factors

Table IV presents values of *K* for various order quantities in months' supply and levels of protection ranging from one stockout per year to one stockout in twenty years.

Suppose, for example, we wish to set an order point for an item falling under Class I above. We receive an average of ten customer orders for the item per week, and the average size of order is two units. Our economic order quantity is six months' supply and leadtime is eight weeks.

To find the proper *K* factor from Table IV, look across the row for one stockout every ten years to the column for six months order quantity and find *K* is 1.64.

Our order point is then given by:

$$\begin{aligned} \text{Order Point} &= 8 \text{ weeks} \times 10 \text{ orders} \times 2 \text{ units} \\ &\quad + 164 \sqrt{8 \text{ weeks} \times 10 \text{ orders} \times (2 \text{ units})} \\ &= 160 + 1.64 \sqrt{80} (2) \\ &= 160 + 29 \\ &= 189 \end{aligned}$$

#### Conclusions

The methods outlined here for providing safety stocks to protect against stockouts will be most applicable where variation in demand during leadtime is due primarily to variation in the num-

PROTECTION AGAINST STOCKOUTS

Fig. 3 INVENTORY INVESTMENT AND COST OF CARRYING SAFETY STOCKS FOR VARIOUS LEVELS OF PROTECTION

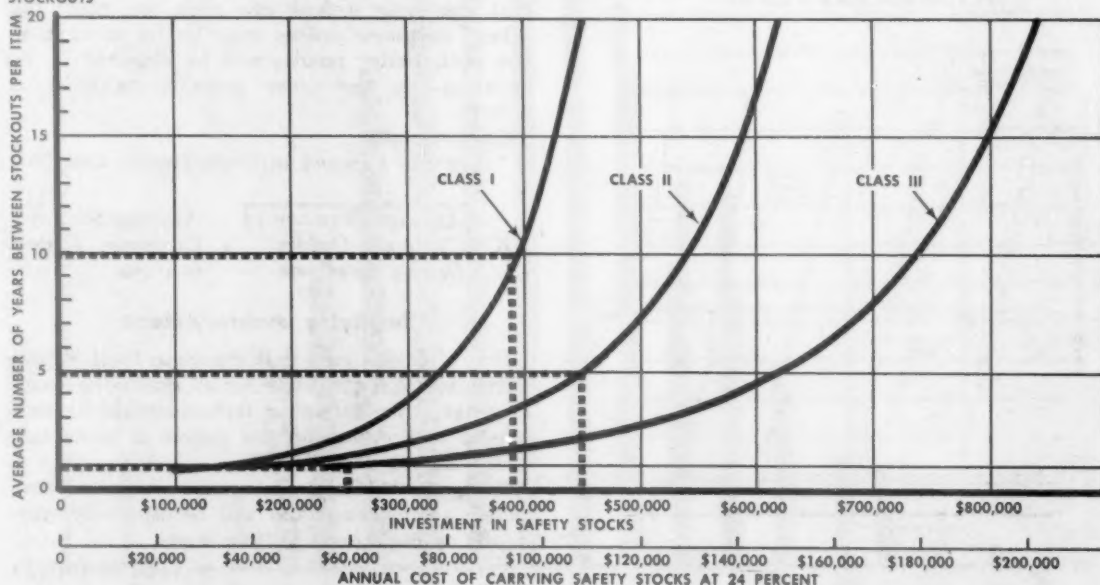


Table III A Policy on Safety Stocks			
Class of Items	Protection	Investment in Safety Stocks	Cost of Carrying Safety Stocks at 24 Percent
Class I	One stockout per item every 10 years	\$395,000	\$94,000
Class II	One stockout per item every 5 years	450,000	108,000
Class III	One stockout per item every year	250,000	60,000
Total		\$1,095,000	\$262,000

ber of demands. In situations where a substantial portion of the variation in demand during lead-time is due to variation in the size of demands or length of leadtime, more complex methods taking those factors into account may be warranted. However, the approach presented here has been used successfully in many companies.

Before changing an ordering policy, be sure to test it on paper. This can be done by using actual or simulated records of demand for a sample of items and seeing what protection would have been provided and what inventory investment would have been involved had the policy under consideration been in effect.

The two strong points of this system of ordering are that:

(1) The size of investment in safety stocks is based on a management decision as to how much they are willing to pay for a predictable degree of protection from stockouts.

(2) Money that is invested in safety stocks is allocated among items in such a way that the greatest benefit will be achieved.

Because of the second point, it has sometimes been found that substituting this approach for rules of thumb has resulted in reducing both inventory and stockouts.

1. Economic lot tables and an explanation of how to use them are incorporated in Mr. Smith's article on economic order quantities which appeared in the November 10 issue of PURCHASING.

2. E. C. Molina, Poisson's Exponential Binomial Limit, D. Van Nostrand, New York, 1942.

3. Satisfactory approximations for  $K$  may be obtained from tables of the normal distribution.

## THE POISSON DISTRIBUTION

If demand follows a Poisson distribution the probability of having any given demand during a period may be obtained from the following equation:

$$p(x) = \frac{d^x e^{-d}}{x!}$$

where  $p(x)$  = the probability of having a demand of exactly  $x$  units during a period

$d$  = average demand per period

$e$  = 2.718, a constant

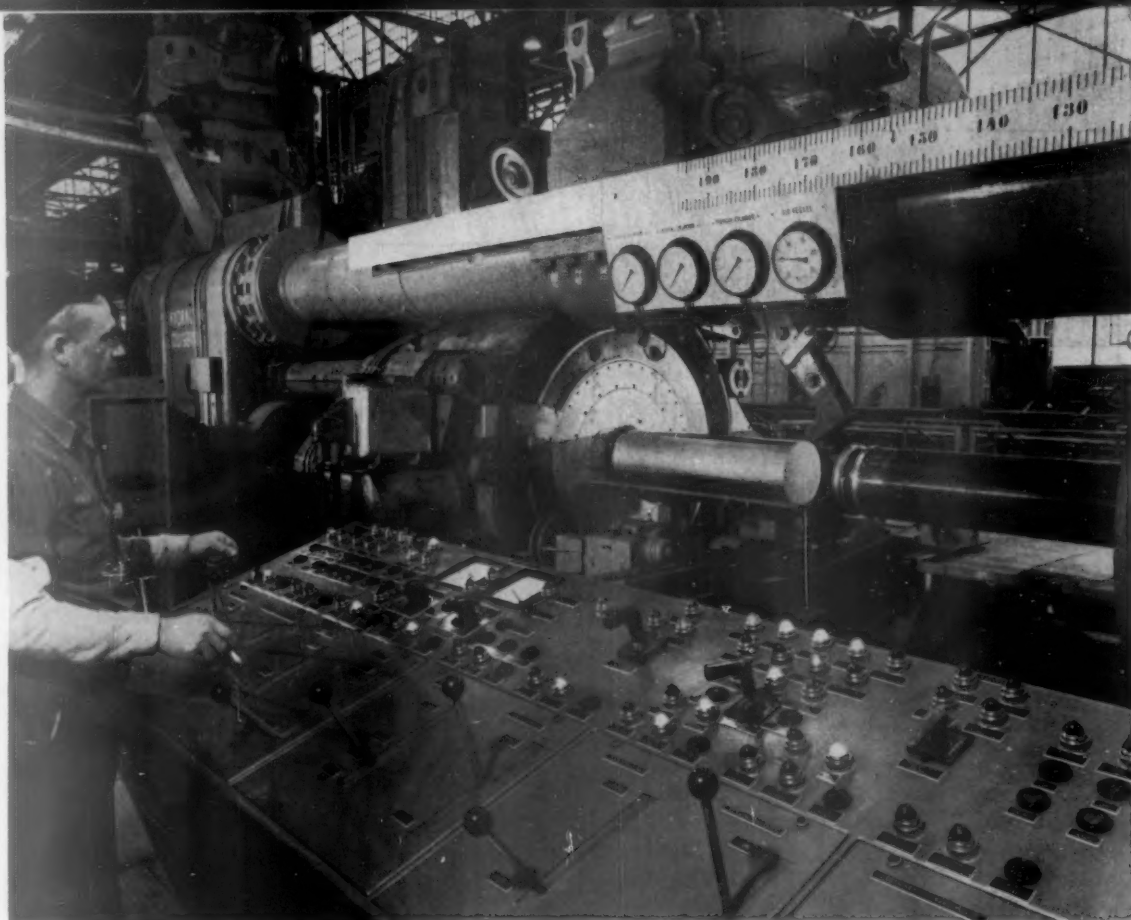
$x! = x(x-1)(x-2) \dots (1)$

eg.  $4! = (4)(3)(2)(1) = 24$

TABLE IV

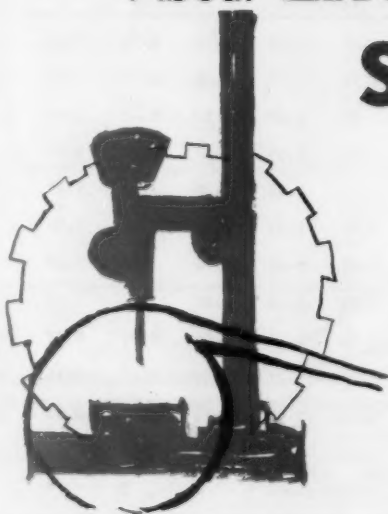
K FACTORS

Acceptable Average Number of Years Between Stockouts	ORDER QUANTITY IN MONTHS <sup>a</sup> SUPPLY											
	1	2	3	4	5	6	7	8	9	10	11	12
20	2.64	2.39	2.24	2.13	2.04	1.96	1.89	1.83	1.78	1.73	1.69	1.64
15	2.54	2.29	2.13	2.01	1.92	1.83	1.76	1.70	1.64	1.59	1.55	1.50
12	2.46	2.20	2.04	1.92	1.82	1.73	1.66	1.59	1.53	1.48	1.43	1.38
10	2.39	2.13	1.96	1.83	1.73	1.64	1.57	1.50	1.44	1.38	1.33	1.28
9	2.36	2.09	1.92	1.79	1.68	1.59	1.52	1.45	1.38	1.33	1.27	1.22
8	2.31	2.04	1.86	1.73	1.63	1.53	1.45	1.38	1.32	1.26	1.20	1.15
7	2.26	1.98	1.80	1.67	1.56	1.47	1.38	1.31	1.24	1.18	1.12	1.07
6	2.20	1.92	1.73	1.59	1.48	1.38	1.30	1.22	1.15	1.09	1.02	0.97
5	2.13	1.83	1.64	1.50	1.38	1.28	1.19	1.11	1.04	0.97	0.90	0.84
4	2.04	1.73	1.53	1.38	1.26	1.15	1.05	0.97	0.89	0.81	0.74	0.67
3	1.92	1.59	1.38	1.22	1.09	0.97	0.86	0.76	0.67	0.59	0.51	0.43
2	1.73	1.38	1.15	0.97	0.81	0.67	0.55	0.43	0.32	0.21	0.10	0
1	1.38	0.97	0.67	0.43	0.21	0	0	0	0	0	0	0



Extrusions are formed by pushing large, heated metal billets through small die openings of the desired shape. Here a ram is about to push a 16-inch magnesium billet into a container which will hold the billet during extrusion.

## What the P.A. Should Know About **Extruded Shapes**



By T. C. DuMond

This is the fifteenth in a series of articles on the technical aspects of purchasing. The material that will be presented is meant to provide a "refresher course" for experienced buyers and basic instruction for trainees or buyers new to specific commodities. Mr. DuMond is the author of the well-known book, "Fabricated Materials and Parts" (Reinhold Publishing Corp., New York.) A mechanical engineer, he has spent years in technical writing.

**T**HUS FAR in this series we have concerned ourselves with metal forms which are rather commonplace. Now we begin to examine some types which are not so well known. Of the newer and less well known types of metal forms are extrusions. There are two basic types of extrusions. The first are produced as large sections which are subsequently cut into individual pieces. The

other are impact extrusions which are produced one at a time. We shall consider the first type in this article.

Perhaps the first use of extrusions was in the production of metal architectural trim. Later similar production methods were adapted to the manufacture of structural parts and shapes.

In extruding heated billets of metal are forced through dies having apertures of the desired shape. The metal emerges from the die in a continuous ribbon from which pieces of the proper length are then cut. Extruding has been likened to the squeezing of tooth paste from a tube. The analogy is reasonably accurate.

Shapes applicable to the extruding process are those having a uniform cross section for the entire length. Within the limits of this restriction virtually any cross sectional shape can be produced. Extrusions are not classified as precision parts, although for many uses accuracy is sufficiently high to make unnecessary any further work.

Although an increasing quantity of steel is being used to make extruded shapes, the greatest percentage of such shapes for structural uses are made of aluminum. Magnesium and copper alloys are also used extensively.

Depending upon the shape and material involved, extrusions compete with forgings, castings, rolled shapes and machined parts.

Some of the more common extrusions are used for padlock bodies, hinges, aircraft and truck flooring, drawer pulls and other types of hardware. Of course, many types of tubing are made by extruding and extruded shapes are used to produce preformed forging blanks.

### **The Process**

Extruded shapes are produced in horizontal hydraulic presses having capacities ranging from 500 tons to upwards of 5500 tons pressure. Heated billets are fed into the press and subjected to pressures of from 50,000 to 170,000 pounds per square inch, depending upon the metal being extruded and the size of shape being produced. Extruding speeds range

from 1½ to 700 feet per minute, again depending upon the metal.

Billets range in size from 3 to 20 inches in diameter. Usually there is a substantial reduction in size from the billet to the extruded shape. Ratios of reduction are as high as 40 to 1. Great reductions result in better quality extrusions. Many metals are subject to warpage upon cooling after extrusion and require a straightening operation.

Normally the only finishing required on extruded shapes is the usual degreasing if the part is to receive a plated, anodized or enameled surface. Some parts will require tumbling or buffing to remove burrs or rough edges caused by cutting to size. Secondary operations on extruded shapes include drilling, tapping and threading.

### **Cost Factors**

In considering the use of extruded shapes, the following cost factors should be taken into account:

(1) Materials costs are relatively high. Most extruded shapes are made of copper, magnesium or aluminum alloys. Some steels and high alloys are now extruded.

(2) Dies for extruded shapes are moderate in cost when compared by dies used in other forming processes. Dies for extruding steels are higher in cost because they must be capable of withstanding higher pressures and temperatures than those forming nonferrous alloys.

(3) Machining costs are low. It is seldom necessary to do any more than such secondary operations as drilling, tapping and threading.

(4) For reasons of economy it is usually necessary to order a minimum of 500 pounds of extruded shapes.

(5) Labor costs are moderate. Only semi-skilled workmen are required and secondary operations are relatively few.

(6) Finishing costs are small to moderate. Often it is necessary to tumble or buff cut extrusions to remove burrs.

(7) Scrap losses are low. Virtually the only scrap created is

the butt end of the billet which cannot be pushed through the die.

(8) Solid shapes are least expensive to produce. Costs rise when semi-hollow and hollow shapes are involved.

### **Materials Used**

In theory almost any metal can be extruded into structural shapes. Actually, however, the high strength and high temperature alloys are difficult and costly to extrude primarily because of the problem of obtaining die materials which will survive the high heats and pressures.

Although there has been a steady increase in the use of mild steel extruded shapes, aluminum, magnesium and copper alloys remain the basic materials for extrusions.

Brass is the most commonly extruded type of copper base material with Muntz metal the predominant alloy formed. Most copper base alloy extruded shapes are in solid forms rather than hollow or semi-hollow forms.

From a long list of wrought aluminum alloys, seven are most frequently selected for extruded shapes. In magnesium, five alloys predominate. Several titanium alloys are suitable for extruding as are many mild steels. Several high strength alloys have been extruded, but the necessary techniques are known only to a relatively few extruders.

### **Advantages and Limitations**

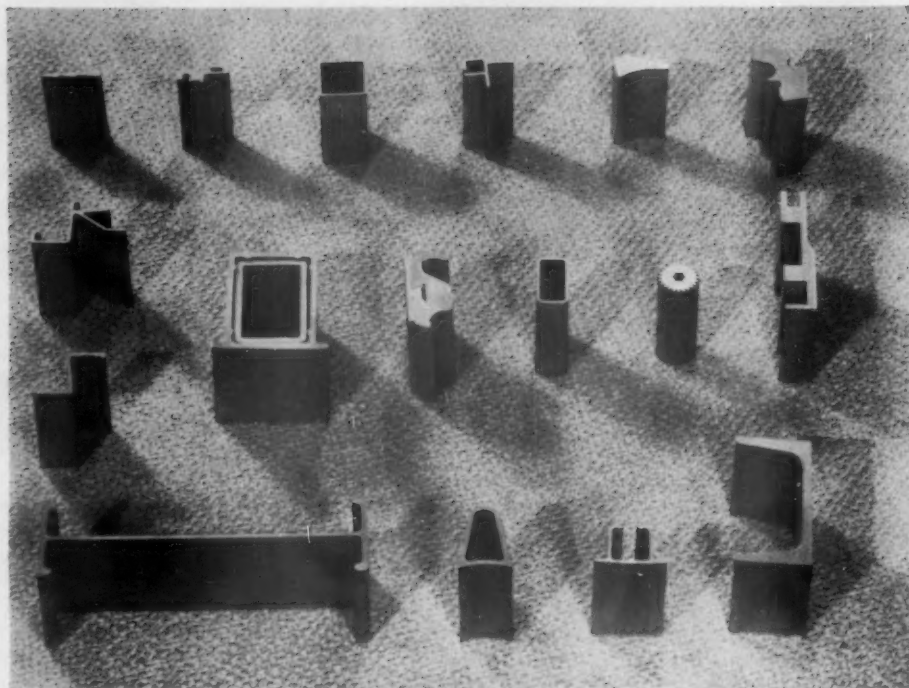
As the advantages of extruded shapes become better known, parts produced in this manner are finding increased use. Factors contributing to their growing popularity are:

(1) Metal can be concentrated exactly where needed in the shape without the restrictions which govern forgings, castings and press formed parts. Strength can be provided in specific areas without wasting metal elsewhere. Shapes that would be difficult to achieve through machining are relatively simple in extruding.

(2) Extruded shapes are less expensive than parts made by competitive methods.

(3) Material quality is high. Forcing heated metal through a

Some of the possibilities inherent in extruded shapes can be seen in this illustration. All of the parts were made by extruding long sections and then cutting off parts of proper length.



small die reduces porosity and provides smooth surfaces. The metal has a dense, homogenous structure.

(4) Reentrant angles and sharp corners, not practicable with many methods are provided without difficulty.

(5) Increases or reductions in section thickness are easy to attain.

(6) Relatively short runs are practicable.

There are a few limitations other than that an extrusion must have a uniform cross section for its entire length. Most important of the limitations are:

(1) Accuracies of parts are not of a high order although the process is sufficiently accurate for many parts. Where extremely close tolerances are necessary secondary machining operations are required.

(2) Production rates are somewhat lower than for some competitive methods.

(3) Sizes of extruded shapes are limited by die and press limitations.

The overall cross sectional size

of extruded shapes is limited by three factors. Presses having capacities of over 5500 tons are scarce, so extrusions must be of a size as to fit this restriction. The usual top size limit of extruded shapes is expressed as being a size capable of being contained within a 12-inch diameter circle.

There is another reason for restricting the size of extruded shapes. When the weight of the warm extrusion becomes too great there is a strong likelihood of bending and distorting. Straightening operations on large sections are expensive.

One method of producing wider sections than normal is to extrude a variation of a V or W and subsequently flatten the piece. Another method is to extrude a large circle, then cut and flatten it.

It is difficult to generalize on tolerances which can be expected on extruded shapes. Tolerances are recognized as being held more closely than in ordinary sand castings, but less closely than machined parts. Tolerances are generally maintained on such dimensions and features as

straightness, flatness, twist, section thickness, angles, contours, and corner and fillet radii as well as size. Where there exists a need for special tolerances on any specific dimensions the need can usually be met, but often at extra cost.

#### When To Choose

Other than the size and material limitations and the fact that extruded shapes must have uniform cross sections there are few rules to govern the selection of extruded shapes. Largely it is a matter of imagination and inventiveness on the part of a designer, engineer or buyer. Extrusions in everyday use include such diverse shapes as a simple wood cutter's wedge to the entire body of a box camera with its light traps. The diversity of products between these two limits is tremendous.

Contrary to the trend toward simplification in most metal shapes, many ingenious individuals have taken two or more relatively simple shapes, combined them into a complex extrusion and saved considerable time and money.

## What P.A.'s Should Know When They

# BREAK CONTRACTS

*When a P.A. breaks a contract he should ask himself this question: "Will the damages brought against me outweigh the savings resulting from breaking the contract?" Here's some information to help answer this question.*

By Paul H. Johnson

THE OLD ADAGE that "the best laid plans of mice and men sometimes go astray" is particularly true in the life of a purchasing agent. Regardless of how meticulously he is in estimating his future requirements, inevitably he will have to cancel a purchase order.

Each time it is necessary to cancel an order the purchasing agent must make some adjustment with his supplier. Fortunately, the vast majority of these adjustments are worked out amicably between common sense business men, so that friendly and harmonious relations continue.

However, even the most friendly business relations are based ultimately, though perhaps unconsciously, on legal rights and duties. Sometimes misunderstandings develop and friendly attitudes suddenly deteriorate. Thus, a purchasing agent should know his legal duties and obligations when he is forced to cancel an order.

### How Damages Measured

The cancellation of a sales contract before time set for delivery is called an "anticipatory breach." Naturally, the party breaching a contract is liable to the other party for any damages suffered.

The Uniform Sales Act says that damages are measured by "the estimated loss directly and naturally resulting in the ordinary

course of events, from the buyer's breach." Various circumstances, however, affect the way in which the law "estimates" the seller's loss.

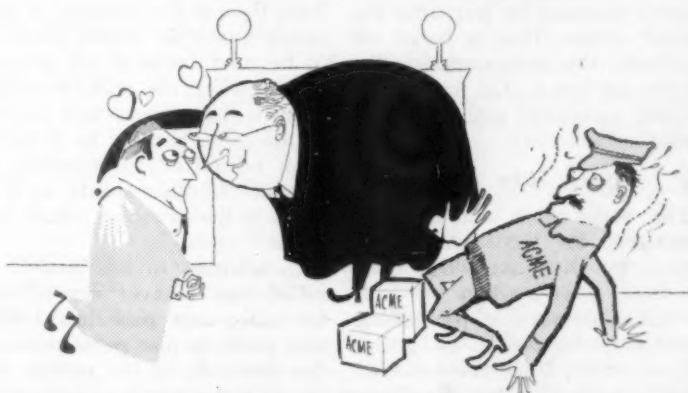
There are two broad classes of cases involving anticipatory breach. The first type includes contracts covering material in possession of the vendor, or materials commonly stocked by him. The second type includes contracts covering material which must be manufactured by the seller or procured especially for the buyer.

The simplest situation for determining damages exists under the first type of anticipatory breach, when there is an available market for the goods where the seller can readily dispose of them.

The damage is the difference between the contract price and the open market price.

Suppose the buyer had agreed to pay \$12.00 per hundredweight for nails and cancels the order before time for the seller to make delivery. Suppose, too, a ready market exists where the seller can dispose of the nails for \$11.50 per hundredweight. The buyer would be liable for the 50¢ per hundredweight difference.

The Uniform Sales Act provides that this difference between the contract price and market price be determined at the time when the goods should have been accepted. If no time is fixed for acceptance, then the difference is determined at the time of refusal to accept.



In computing damages for the cancellation of a contract, the courts have usually resolved doubts in favor of the buyer. Keeping this in mind, a P.A. can avoid settling with a seller for unduly high damages when he, the P.A., breaks a contract.



A purchasing agent should be careful in cancelling an order. Once the cancellation is accepted by the seller there is no way the purchasing agent can again legally demand compliance with the contract.

Suppose the goods are already in the hands of the seller but no market price exists for the material, although it is of use to some potential buyer. The damage is the difference between the contract price and the price obtained at a proper resale. If no market value exists and no sale or other pecuniary value can be realized to the seller, then the damage is the full contract price.

#### **Seller's Option**

When a buyer tells the seller that he doesn't want the material ordered, the seller has an option as to the action he can take. First, the seller may acquiesce in the termination of the contract, subject to his right to bring an action for the wrongful breach. Or, second, the seller may ignore the anticipatory breach and complete the contract, giving the buyer a chance to change his mind.

The seller cannot increase the buyer's damages by pursuing the second option. This is based on the theory that any person has the power to break his mere executory agreement and submit to damages incurred.

#### **Buyers Take Note**

The seller does not have to acquiesce in the anticipatory breach by the buyer. But once he does, it is binding on both parties. Therefore, a purchasing agent must be careful in cancelling an order. Once the cancellation is accepted by the seller there is no way the purchasing agent can again legally demand compliance with the sales contract.

When a seller receives a cancellation notice from the buyer, he can accept the breach and resell his goods to liquidate, or fix his damages. The resale price he receives will be regarded as the market price unless the buyer introduces evidence to the contrary.

In making an adjustment with the seller, a purchasing agent should not accept the resale price as the market price where: 1. the resale is not properly conducted; 2. it is not made within the proper time nor in the proper manner; 3. it is not made in the open market or is made in a strange market. The seller must use diligence to obtain the best possible price in a resale.

#### **Damages for Special Stuff**

When an order has been issued for material to the buyer's specifications, cancellation of the order involves more legal problems than if the material is commonly available. Where goods are to be manufactured or procured by the seller, the seller is entitled to such damages as will put him in the same position as if he had been permitted to complete the contract. In other words, he is entitled to the profit he would have made.

In addition to lost profits the seller may recover expenditures for labor and materials reasonably made in part performance of the contract, to the extent they are wasted when the performance is abandoned. The seller may also recover for any liabilities he has incurred at the time of the breach

by reason of contracts he has made with others for such items as sub-assemblies and raw materials.

Various formulas have been used by different courts to estimate the seller's loss on goods to be manufactured when the sales contract is cancelled before manufacturing is complete. One court said the recovery should be the costs incurred, less salvage value plus lost profits. Another court said the damage should be the difference between the contract price and the cost to perform. Another court said the damage was the difference between the contract price and the cost of production. Still another court said the loss should be computed as the difference between the contract price and the cost of manufacture and delivery.

All of these methods, when resolved, simply mean that a seller is entitled to the profit he would have made on a contract, for material to be procured or manufactured by him, when the contract is broken.

#### **Special Damages**

Suppose a manufacturer is engaged in the production of a special product with a limited market and a sales contract with him is broken after manufacturing is complete. The manufacturer may be entitled to special damages in a case like this.

Ordinarily, as stated before, his damages would be the difference between the contract price and the price he could obtain on the market at a resale of the goods. Since his market is limited, a resale would diminish his capacity to make other sales of his product.

In cases of this nature courts have said: the manufacturer is entitled to recover the profit he would have made on the contract without being forced to resell the product.

Suppose a sales contract covers an article to be manufactured that is out of the usual order, and the contract is cancelled after the article is completed. Here, the buyer would be responsible to the seller for the total purchase price on due tender of the article, if

(Please turn to page 194)

# Long Range Planning and the P.A.

By Eugene S. Page

*An alert and energetic P.A. cannot afford to have a purchasing program which extends from day to day. He must plan ahead. Here are some suggestions on how this planning can be handled and what it will accomplish.*

*Editor's Note: This article will be presented in two parts. The second will appear in the next issue.*

**L**ONG RANGE PLANNING is an effort to predict future trends. It involves consideration of markets and styles, prices and costs, economic conditions, technology, and government. It attempts to anticipate product demand, operating levels, inventory requirements, and need for financial resources, facilities, and personnel. Its goal is to project courses of action toward sound business objectives.

How do industrial purchasing, your department, and you the P.A. fit into this picture? First, let's look at the goals of long range planning:

## **Profit**

To obtain, consistently, maximum net profit to point of diminishing returns on ownership capital;

## **Markets**

To maintain and improve market position—measured against total demand and competition,—in terms of:

- (1) Customer recognition and product acceptance,
- (2) Advanced style and performance,
- (3) Unit sales,—and dollar volume,
- (4) Sound methods of distribution,
- (5) Profitable prices, and
- (6) Production and service facilities;

## **Products**

To improve existing products, and to develop new ones,—that by reason of utility, style, and price will promote economic demand and broaden market participation;

## **Operations**

To protect owner's investment; to preserve financial and physical resources; to develop sound organization; to perform manufacturing and

material functions with highest efficiency,—and to maintain and strengthen ability of the business to continue on a profitable basis.

So,—where is purchasing? It has not appeared in any statement. Yet these are the essence of industry,—and basic goals toward which your company strives. As the P.A.,—lets take a look at the vital part you have been selected to perform.

## **Profit**

Surely you have heard that purchasing is a profit-making job (And it's got to be,—nobody wants to be just part of the overhead). But how?

First, the idea must be explained. No one person or function makes a profit,—which, after all, is merely the difference between dollar revenue and expenditure over a period of time. You have to "contribute" to profit. Obviously there are only two ways:—either bring in more money or take less out—or both. And purchasing can do both!

## **Sales and Revenues**

So how do we bring in more money? There are at least three ways to help sell the company and its products:

(1) **Market Research:** The purchasing agent, and his staff, should know as much about their markets in every aspect of competition, products, costs and prices, economics and trends,—as the sales department knows about theirs. Usually these markets overlap,—as both purchasing and sales may be operating in the same metals, chemicals, packaging, textile, or other industry.

The P.A.'s knowledge of markets will increase sales by assisting the Sales Manager:

- (1) To select the most favorable product mix for customer acceptance and profit;

- (2) To establish price levels at the best compromise between sales volume and profit;
- (3) To direct advertising, promotion, and the sales force toward markets and customers currently in the best economic situation.

Of course all this does not just happen. Market research and analysis,—in relation to industrial procurement,—finally is beginning to receive the recognition it deserves. After all, your purchasing department is in touch with the market place as much as sales, and on a more realistic basis. Sales is promoting product acceptance and orders, its real objective.—The P.A. is developing competition, constantly in touch with supply and demand.

But still more is required. Purchasing must do its own market research job. This involves specific types of management, organization, objectives, budgets, and a knowledge of materials and the economy,—that will supplement both your own procurement,—and sales.

(2) **Trade Relations:** "Reciprocity" is an old story to the purchasing man. And he does not like it. He feels it restricts his freedom to buy on the basis of quality, service, and price—and so it might. But these are only measures,—not objectives. The purchasing agent's first goal is to make the maximum contribution to profit. Recognition of important customer-vendor relationships is essential, and desirable. This is an essential part of business today, and one of the areas where purchasing is indispensable.

But are you and the sales manager in your company doing it on a hit and miss basis,—or according to plan? Here's how:

(1) Recognize the need for reciprocal business to meet competition—but employ it as little as possible. Be sure it is not a crutch for the sales department or an excuse for weak and costly procurement.

(2) Find the common ground of purchases and sales. This is not alone common customers and vendors, but the same industries and localities.

(3) Work closely with the sales manager and sales market research. Keep purchase-sales relationships in your company for this purpose on a high organization level.

(4) Report sales in terms of products and services sold, customers and industries, and dollar volume.

(5) Record purchasing department performance accurately. Every department keeps files and usually some cross reference of purchases and vendors. But this is not enough. At the end of every three, six, or twelve months do you know your purchases in terms of dollars, commodities, industries, vendors,—the sum of purchasing department effort? Or do you have to dig it out if somehow there is time? This is vital information.

(3) **Public Relations:** Your company has two main avenues of contact with the outside world: First, of course, advertising and sales. Then, purchasing. Here importance is strictly quality,—not volume,—for in purchasing we want the minimum personnel to spend the money but adequate

for economic performance. Industrial purchasing has to be known by the job it does, by contacts and competition, and leadership in better standards for materials, packaging, and business conduct.

As the P.A. you can't sell the product. But you can sell the company! This is an important part of your job.

Altogether, industrial procurement has real opportunity to increase business profit by strengthening sales. But the purchasing agent has three principal problems:

### **Industrial Economics**

How well do you know the basic facts and inter-relationships of industry and trade in the United States, and the world? At the start, of course, are only two classes,—commodities and services. Then there are farming,—mining,—quarrying, manufacturing, and construction; and commerce at wholesale and retail. Here are the foundations. Have you built on this for a complete picture, including your own operations—both sales and purchases?

### **Internal Statistics**

Second—know thyself! This means statistics and reports for purchases and sales,—automatically, frequently,—and preferably by punch card accounting and publication.

Also, bring your internal statistics into the same standard system as your external industrial-economic data, for a truly coordinated operation.

### **Methods**

All of these require financial decisions and budgets, organization and personnel, operating policy, and procedures for accumulating and reporting both external and internal data.

### **Cost of Sales**

"Cost of Sales" is the cost for acquisition and production of goods and services for sale,—including the cost of all purchases. Now we are on familiar ground. We will spend money. What you save (less expenses) will add directly to pretax profit. Is this important?

Take \$100,000 of sales. Net profit before Federal Income Taxes would be \$8500.\* Assume purchases to be 40% of sales, or \$40,000 (a reasonable estimate). Increase sales 10% and add \$850.00 to pretax profit, or say \$1000 since profit may increase at a faster rate. Now reduce the cost of purchases at one-fourth the rate of sales or 2½%—and again increase pretax profit by \$1000. Yes,—conservatively,—efficient purchasing is four times as effective as sales in adding to profit, your ultimate goal!

\*Based on the average of 9200 manufacturing corporations as reported for the third quarter, 1957, by the Federal Trade Commission and Securities and Exchange Commission.

# Purchasing's Future in Materials Management

I **CONTEND** that purchasing is at a dramatic crossroads. It is faced with the prospect (1) of being absorbed into a broader scope material management structure, or (2) expanding its vision to embrace the entire material system.

Up until now "the systems concept" that has been accepted in design and development engineering has been overlooked or ignored in industrial management. By far, the most serious area affected is that of planning, scheduling and controlling materials—materials management.

But the very logic of industrial expansion, coupled with rapid technological progress is forcing a new look at the concept. It is up to purchasing people now to understand the nature of what's coming and prepare themselves to handle it.

## **The Meaning of Materials**

Materials, by their very nature, cut horizontally across the board. From their accounting standpoint, they are "raw", "in-process", and "finished", and of necessity, affect all functions and all activities. For example:

*"Materials, by their very nature, cut horizontally across the board. They are raw, in process or finished and, of necessity, affect all functions and activities."*

*Management is beginning to recognize the "systems" nature of material-flow. It won't be long before this poses a problem to purchasing: to be submerged in the material management structure or to lead it? The P.A. must move now, for time is running out.*

**By Louis J. DeRose**

To engineering, they are the essence of product design, performance, and reliability.

To manufacturing, they are an element of machine and manpower loading.

To sales, they are the means of competing for customers and for markets.

To finance, they are an expenditure of working capital funds.

Materials are all of these, and more. *But, they cannot be all of these, at the same time, to all activities, in equal measure.* They are a limited resource, and must be balanced for optimum econ-

omy. But more important, they are a system of production-distribution flow. This means that inputs and outputs of this flow must be levelled at every point so as to avoid bottlenecks and bulges. Changes in market demand must be effected immediately by changes in material volume and rate. Always, contributing factors to the flow must be subordinated to overall requirements and demands.

Now, a necessary feature of the systems concept is that of the systems manager. By definition and responsibility, the systems manager plans, coordinates, and monitors all activities which contribute to the success of the System. Although he integrates functions to a common purpose, he does not manage them directly. His scope of authority extends to the system, or project, as a whole. It does not embrace the functions which contribute to it.

*(Turn Page)*



The answer is still 'NO'!

Therefore, returning to the analogy of material-flow as a systems concept, it follows that materials must be managed by a true system-manager. The material manager, or procurement manager, as he sometimes is called, plans, coordinates, and monitors all activities which contribute to material-flow. This is not to suggest that he manages sales, manufacturing, engineering, or finance, all of which affect material by their actions. The material manager's *authority* does not extend to functional areas. However, his *responsibility* must be to the material-system. He must assure adequate inputs to the flow, and balance levels at all stages of the flow, so as to satisfy output demands, efficiently and economically. He must subordinate short-run functional aims to long-run organization objectives. Specifically:

**He must insist upon material specifications that promote maximum value rather than design or user convenience.**

**He must plan and schedule materials to the overall needs of the**

**program, rather than specific demand of a manufacturing or maintenance unit.**

**He must balance inventories of raw, in-process, and finished stock so as to optimize return-on-investment, rather than satisfy sales, manufacturing, or finance objectives.**

**Always, he must focus attention on materials as a production-distribution system, rather than a factor used by any single functional component.**

When materials are looked at in this light, the material or procurement manager exercises primary authority over all activities which contribute directly to

material flow. He combines material or production control, inventory control, purchasing, receiving and stores, traffic and transportation. He analyzes contract or sales forecasts; explodes bill-of-material requirements by quantity and due-date; establishes optimum stock levels; and determines how and when material will move through the production-distribution cycle. He coordinates internal engineering and manufacturing with external procurement, and integrates all with an overall material plan.

### The P.A. As Manager

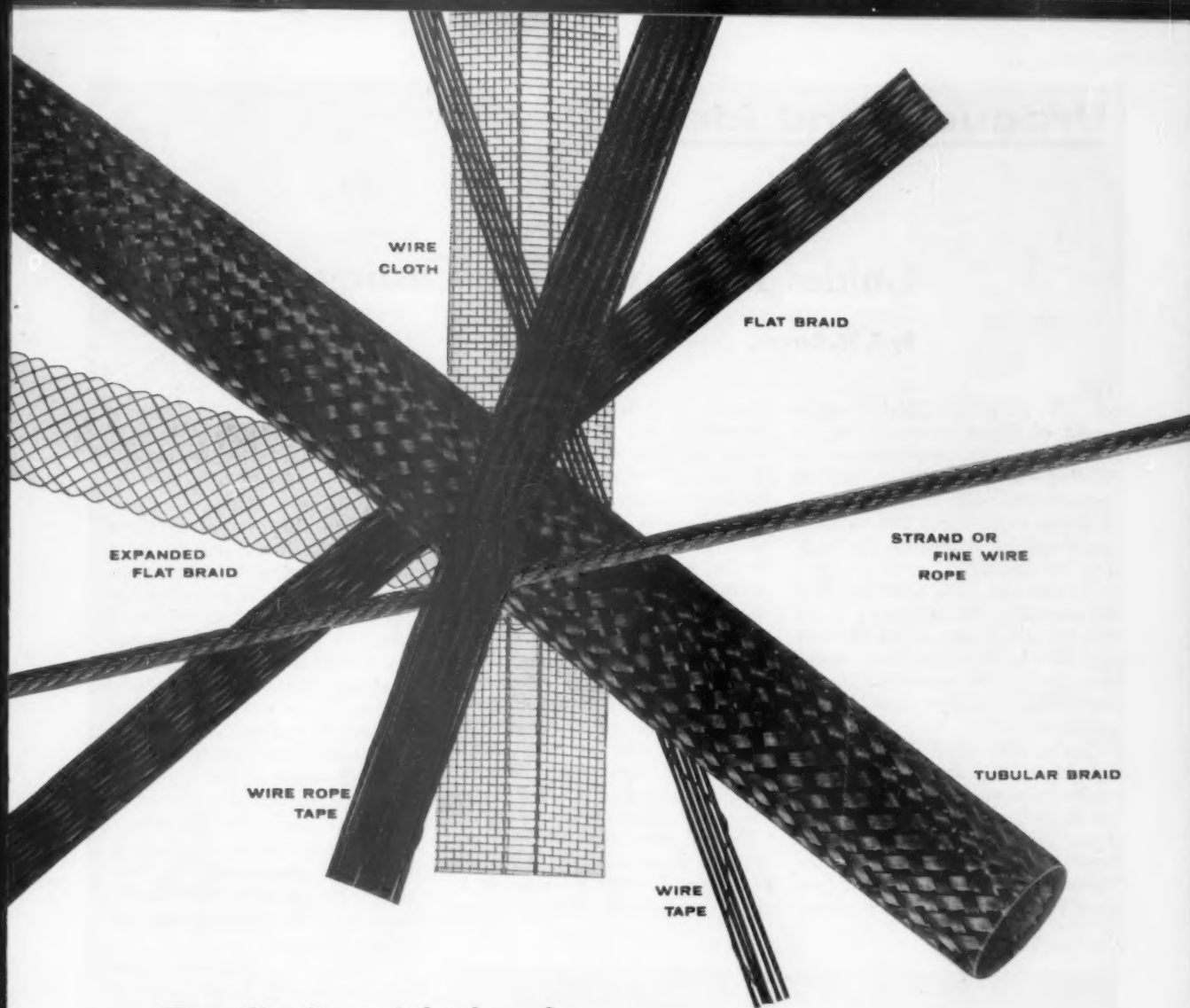
Although industry has been slow to acknowledge the value of the material manager, it is obvious that management is beginning to recognize the "systems" nature of material-flow. Certainly, the extension of modern data-processing techniques to material, production, and inventory control, begins from the premise that these are elements of a common integrated process. It would seem like a short step from recognition of this fact to acceptance of the system-manager concept to administer this process.

It is this evolution that presents the purchasing agent with his great challenge and opportunity. Will he be absorbed into the material management structure, or will he expand his own operation to take in the whole system? In the first instance, purchasing will lose its status and be submerged within a larger function. In the second, it will achieve real authority by combining all facets of the material-procurement flow.

At present, the choice of direction is largely purchasing's to make. But time is quickly and surely running out.

*Based on an address given before the Purchasing Agents Association of Chicago.*

**"The P.A. must focus attention on materials as a production-distribution system, rather than a factor used by any single functional component."**



*Familiarity might breed*

## **NEW PRODUCT IDEAS!**

The wire fabrications shown here, highly developed specialties of National-Standard, are available in many types and sizes. Each can be produced in any metal that can be drawn into wire.

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CROSS PERFORATED METALS, Carbondale, Pa.: industrial, commercial, and decorative perforated metals

### Guides for Buying Die Castings

By F. W. Barrett, purchasing director, Royal McBee Corporation

THE PURCHASING department of Royal McBee Corporation buys a lot of aluminum die castings—2½ to three million pounds annually. This is one reason the department has to have an excellent procedure for buying die castings.

The procedure is based on close cooperation with suppliers—from the initial design stages through the details of tooling and checking production samples. Here's how Royal McBee handles the problem:

1 On new projects, suppliers are first asked for advice on die casting designs. Then preliminary parts are prepared by Royal McBee's design engineering department. The drawings include information on functional requirements as well as basic considera-

tions such as weights, tolerances, strengths, etc. (*Product Standards for Die Castings*, by the American Die Casting Institute, is used for specifying die castings.)

2. Selection of vendors for quotations is next. Here experience is the best teacher. From past performance the buyers know the kind of cooperation they can expect from the different die casting suppliers.

If a new vendor is being considered for a quotation request, a tour is made of his plant. Frequently, buyers in other companies that have done business with the supplier are asked for their evaluation of the vendor.

Formal quotations are then requested from not less than three nor more than six vendors. It is clearly understood by the vendors

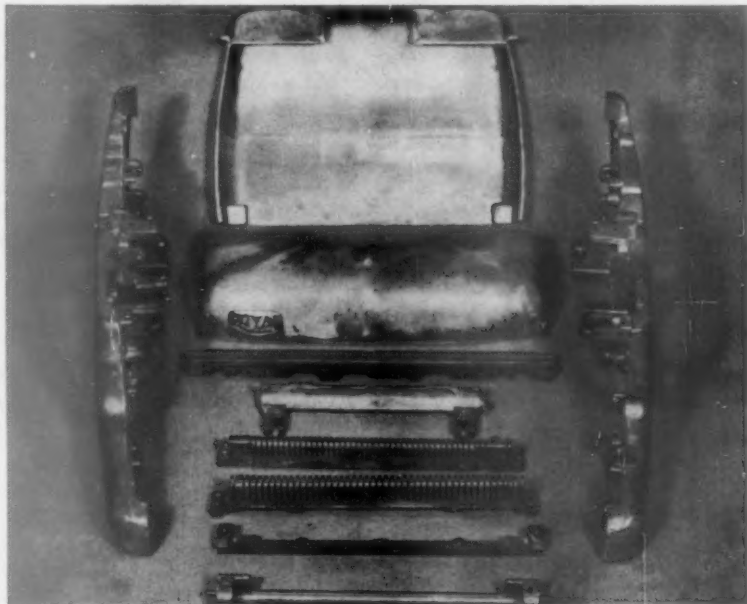
that Royal McBee will supply models and patterns. The company also indicates the shrinkage for intricate shapes and designs.

3. When the quotations come back, purchasing discusses them with engineering to be certain the details of each proposal are thoroughly understood. Any doubts as to what the vendors have agreed to supply are cleared up at this time. Details such as location of die parting lines and ejector pin marks on the die castings are given special consideration because of their importance in determining the cost of subsequent machining operations.

Quotations are then analyzed from a cost standpoint. But lowest cost per piece is not the sole determinant in selecting the die casting vendor.

4. When the contracts have been formalized, final drawings are sent to the vendors. From this point, until the die castings are in actual production, close contact with the vendors is maintained to clear up any questions between Royal McBee's engineers and the supplier. To help meet production schedules, deadlines are set-up for delivery of sample castings. Quality control people also work with the vendors' inspection personnel in checking major dimensions of all parts.

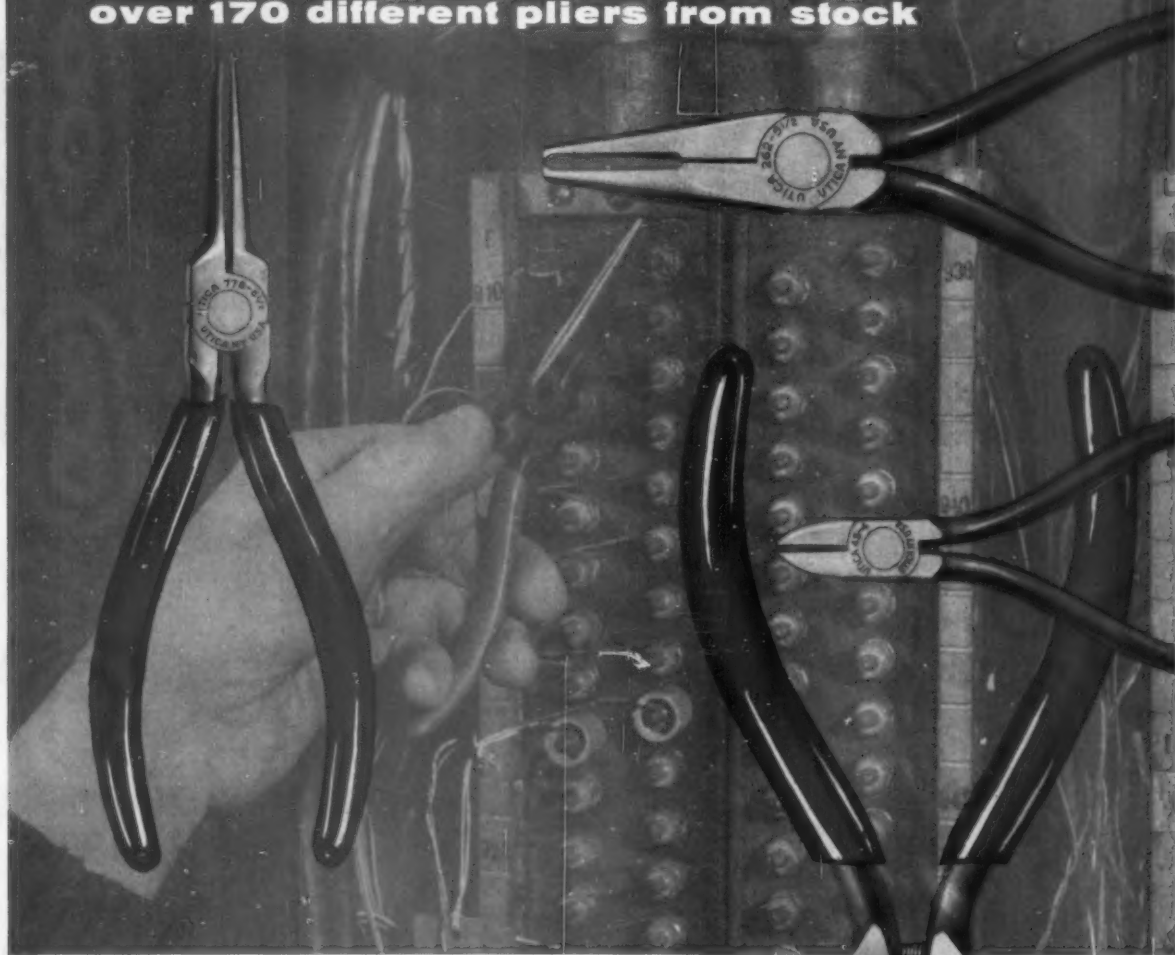
In the meantime, vendors submit sample castings which are checked for soundness and to make certain there is enough metal for subsequent machining operations. After the samples have been delivered, three to four weeks are usually allowed for final correction, resampling, approval and hardening of the molds prior to full-scale production.



These 11 aluminum die castings are used in Royal McBee's electric typewriter. Since die castings are a major purchase for the company, they have to have an excellent procedure for buying die castings.

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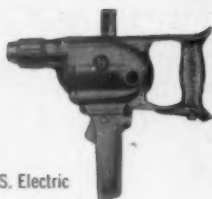
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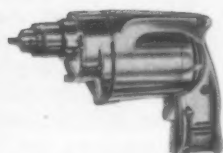
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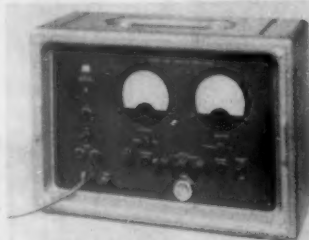
Harrison, N. J.

For Free Booklet (PG-101-C) on RCA power tubes, thyralons, rectifiers, ignitrons, magnetrons, vacuum-gauge tubes, write RCA Commercial Engineering, Section K-36-T, Harrison, New Jersey.



## Products

### Instrument Measures Distance and Vibration



Instrument with wide electronic, industrial and aircraft applications, offers a new method of measuring distance and vibration. May be used for vibration tests to meet Jan-Mil specifications in electronic components; to measure vibration in rotating shafts or bearings; on a production line for determining sizes and grades of parts for tolerance; and for testing of members of airframes, either in wind tunnels or on actual airframes. Avoids hazards and makes remote testing possible. Finds application where safety considerations make it necessary to have the indicating instruments remote from the machinery and the probe. Particularly suited to the measurement of vibration where direct physical contact is not possible, and for measuring the dilation and eccentricity of rotating parts. Distances and vibration amplitudes from 50 micro-inches to 0.5 inches can be measured accurately in the frequency band 1 cps to 10 kc with the Wayne Kerr Vibration Meter. Wayne Kerr Corp., 2920 N. 4th St., Philadelphia, Pa.

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"Pay for themselves? Well, soon as the next one does, send it out."

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PURCHASING

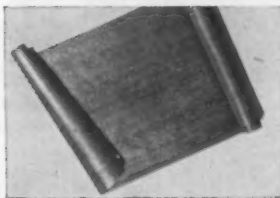


MORE OF THE GARLOCK 2,000

**"If you're gasketing against steam  
or gases to 700°F., try GARLOCK 900"**

Most engineers agree, that safe positive sealing of pipe flanges and gasketed joints on systems handling steam, gas, or air to 700° F. is best accomplished with a gasket material such as Garlock 900 which is resistant to plastic flow, but is compressible enough to compensate for surface irregularities. Garlock 900 is made from long fiber Canadian asbestos and a special rubber compound bonded under pressure and vulcanized into a homogeneous structure . . . compressible, yet resistant to plastic flow.

**"...for hot oils use GARLOCK 7021"**

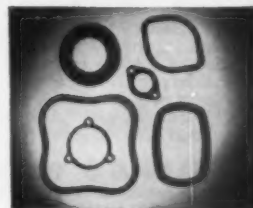


Sealing against hot oils to 700° F. on pipe lines, internal combustion engines, compressors, or other high temperature applications calls for a strong dense gasketing such as Garlock 7021 . . . oil resistant, compressi-

ble, yet unusually resistant to plastic flow under heavy bolt loads.

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This Compressed Asbestos and Neoprene Gasketing for gasketed joints and pumps, provides the desired compressibility necessary for safe gasketing on systems handling solvents or oils . . . without plastic flow under heavy bolt loads.



These high temperature gaskets are still another part of the Garlock 2,000 . . . two thousand different styles of packings, gaskets, and seals for every need. The only complete line. That's why you get unbiased recommendations from your Garlock representative. Call him or write for Gasket Folder AD 162.

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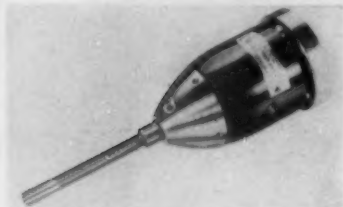
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## Products and Ideas

### Fluid Transfer Glands Permit Operations in High R.P.M. and P.S.I. Ranges



Fluid transfer glands are equipped with a high speed Aircraft type Class 7, ball bearings and magnetic seals which permit operations in the high r.p.m. and p.s.i. ranges. Tested and guaranteed to operate at "zero" leakage even when run at speeds up to 15,000 r.p.m. and pressures up to 1500 p.s.i. The model illustrated has many patented features, one of which is that the entire housing, containing all of the sealing and operating components, may be removed from the one-piece gun drill carrying shaft and

flange. This enables the gun drill carrying shaft and flange to be permanently attached to the machine after a true indicator reading is established. This permits changes of bearings, seals or other necessary maintenance or repairs to the housing without curtailing production or disturbing the original installation true indicator reading. A standby housing can be slipped on to the flanged shaft and tapered ground surfaces in the locking nose guarantee interchangeability and perfect alignment. The DuCAS Corporation, One Washington Ave., Providence, R. I.

Write No. 19 on Inquiry Card—Page 32

### All Electronic Transistorized Digital Voltmeter



An all electronic transistorized digital voltmeter is being introduced to the industry by the Systems Division of Beckman Instruments, Inc., 325 Muller Ave., Anaheim, Calif. Accuracy and resolution of the new Model 81 Digital Voltmeter is 0.015% over the three automatically switched ranges of  $\pm 10$ ,  $\pm 100$  and  $\pm 1000$  volts D. C. Input impedance of the instrument is 10 megohms at all times, even when digitizing and under conditions of overload. Operationally, the voltmeter looks at the unknown input, balances it with a signal from a precision Digital to Analog Converter and presents the reading in the Converter. These operations are repeated 15 times per second.

Primarily intended for automatic measurement, display, and recording of voltages in digital form, the Model 81 is ideally suited for use in applications such as production testing, precision research measurements, telemetry, and alarm monitoring.

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## How to Get Maximum Return

Improved manufacturing processes and trends toward automation point up a growing need for direct-current drives in industry. Adjustable-speed d-c drives permit production of more and better products from a smaller number of machines. General Electric's new Speed Variator is designed for just this purpose.

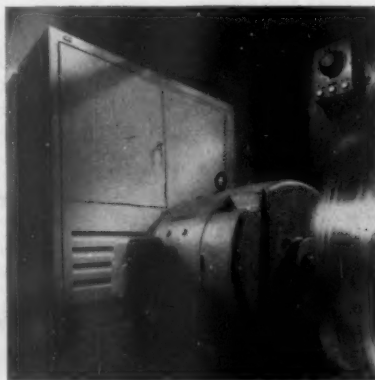
Operating from a-c power, the Speed Variator provides stepless, adjustable-speed over a wide range. Increased output, better quality control and added machine flexibility can help reduce unit costs.

By specifying General Electric's new Speed Variator, you can assure a maximum return from your entire machine investment. For more information, write for GEA-6643, *Direct Current Motor & Generator Department, Erie, Pennsylvania.*

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**2. Static Exciter**, with silicon rectifier, has no moving parts, requires no warm-up, provides more production time, less maintenance.

**3. Two-Unit, Four-Bearing M-G Set** features Tri-Clad† '55' motor for

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**4. Front-Connected Controls**, recessed wiring troughs make routine inspection easy, cut maintenance time.

**5. Kinamatic\* Drive-Motors** provide instant response to control signals. For details on this fast-acting motor see next page.

For more information contact your

Apparatus Sales Office or write for GEA-6643. *Direct Current Motor & Generator Department, Erie, Pennsylvania.*

In Canada, contact Canadian General Electric, Peterborough, Ontario.

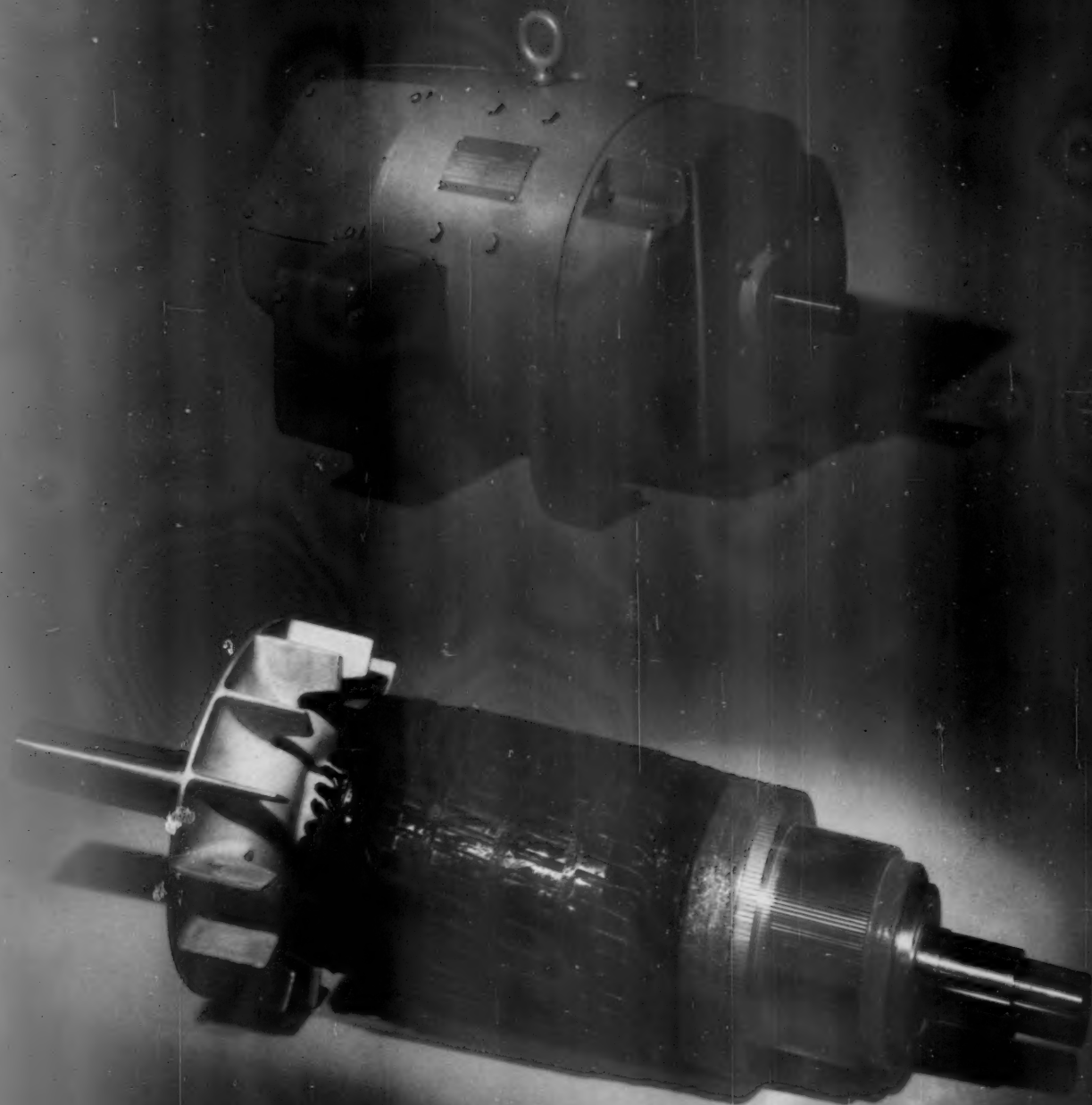
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**Low Inertia Armature** is dynamically balanced, banded with steel and glass . . . gives dependable, high-speed operation . . . skewed armature slots minimize torque pulsation, permit smooth machine operation at low speed.

**Other Power Packed Features** of new d-c Kinamatic motors help give you more continuous, more automatic production . . . economically.

Additional information is available at your nearest General Electric Apparatus Sales Office. Or, if you prefer, write for Bulletin GEA-6355. *Direct Current Motor and Generator Department, Erie, Pennsylvania.*

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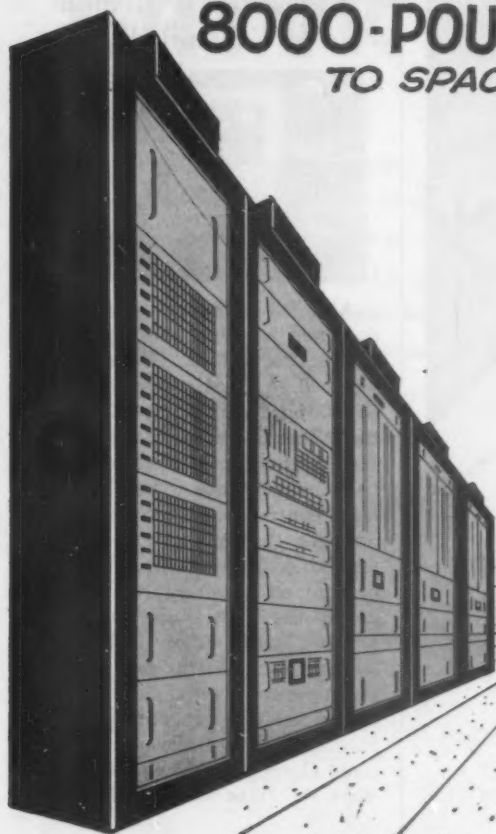
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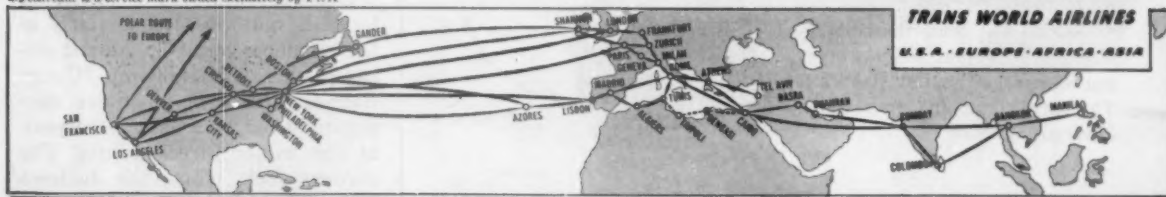
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**WRITE TODAY.** Our Eagle-Picher representative will bring the portable laboratory to your office where you may make this test yourself. The Eagle-Picher Company, Cincinnati 1, Ohio.



## **Products**

### **3-KW Ultrasonic Generator is Remote Controlled**



APT-500 Sonogen generator is designed for high-volume, all day production cleaning. Will activate up to 6 sq ft of transducer area, or 300 gallons of cleaning solution. Features motor tuning, twin oscillator construction and, for the first time, remote control. The remote control panel connects to the Sonogen through a multi-conductor cable. This is ideal for many production cleaning set-ups, because the panel can be incorporated with other instruments located at a central control area. The operator can thus adjust the entire cleaning procedure without leaving his post. Branson Ultrasonic Corp., Stamford, Conn.

Write No. 21 on Inquiry Card—Page 32

### **Corrugated Shipping Container For Bulk Materials**



Corrugated shipping container for bulk materials, particularly in the chemical industry, almost entirely eliminates bowing. "Cargo Carrier" features an inner corrugated tube with bellows corners at the major stress points. The corners lock when the bellows

*(Please turn to page 106)*

For More Information Write No. 218 on Inquiry Card—Page 32

# **TOUGH** ... and stands up in any product **GATOR HIDE® KRAFT**

If paper is part of your product, make sure it's tough, dependable, **GATOR HIDE® KRAFT**. It's volume-produced in weights, grades and colors to meet your exact specifications—also carried in stock for wrapping purposes in popular sizes and weights for immediate delivery. All quality-controlled from forest to finished product.

Our technical service staff will help solve your particular problem. Call us today.

*your most dependable source of supply...*

**INTERNATIONAL  
PAPER**

SOUTHERN KRAFT DIVISION  
NEW YORK 17, N.Y.



# CHACE THERMOSTATIC BIMETAL

ACTUATES ANOTHER PRECISION PRODUCT

A product of Harper-Wyman Company  
8550 Vincennes Ave., Chicago 20



## THE HARPER - WYMAN UNI-MATIC "FLAME SELECTOR"

This new #5522 Harper "Flame Selector" makes "cooking with gas" more than just a cliché implying efficiency. It combines the flexibility of gas flame with the precision of a thermostatic control, eliminating scorching and burning, assuring the same optimum results time after time, once the controls are properly set. Even when serving must be delayed, foods are held appetizingly ready to eat for considerable periods of time. And the homemaker can go about her other tasks, knowing that foods are being cooked right—automatically—and that pan washing will be easy.

The spring supported sensing element makes direct contact with the bottom of the pan. When the pan reaches the temperature selected, the sensing element signals the control valve and from that point on the gas is automatically turned up or down as required by changes in pan temperature. In order to avoid the effects of fluctuating ambient temperatures as a result of heat from other burners in the range, each control contains a special precision compensating element of Chace Thermostatic Bimetal.

Once again Chace provides the precision thermostatic bimetal element on which the efficient operation of a fine appliance may depend for many years, without repair, adjustment or attention of any kind. And once again, we point out that designers and buyers of controls have confidence in our products, safe in the knowledge that a third of a century of bimetal development and processing backs up every pound we ship.

Chace Thermostatic Bimetal is available in over 30 types, in strips, coils or completely fabricated and assembled elements of customer design. Write for 1958 edition of "Successful Applications of Chace Thermostatic Bimetal," containing many pages of engineering data.



**W. M. CHACE CO.**  
Thermostatic Bimetal  
1685 BEARD AVE., DETROIT 9, MICH.

For More Information Write No. 220 on Inquiry Card—Page 32

## Products

(Continued from page 104)

scores are broken, creating two separate container compartments. In addition to reducing outward strain to a bare minimum, the bellows corners greatly increase the stacking strength of fully-laden containers. When being filled, the inner tube is fitted into a tray which serves as the package's primary bottom closure. After materials have been packed, the tube is covered by an outer case which is capped by another tray and closed at the bottom by a series of four flaps. Fibre Drum & Corrugated Box Division, Continental Can Company, 530 Fifth Avenue, New York 36, New York. Write No. 22 on Inquiry Card—Page 32

## Safety Goggles With New Features



Cup-type safety goggles for heavy industrial operations assure the greatest degree of eye protection. Injection molded from tough thermo-plastic, they have high impact resistance and their contour design guarantees safety and fitting comfort. Have a lustre finish which gives added ease to cleaning and sterilization. Have a removable soft sponge face pad. Snaps at top and bottom of pad make it easy to detach for cleaning or replacement. This is especially helpful in assuring sanitation when goggles are worn by more than one person. A dark green glass provides complete protection from harmful infrared and ultraviolet rays. Newly designed side shields guard the eyes against sparks and side flashes. Bausch & Lomb Optical Co., Rochester, N. Y.

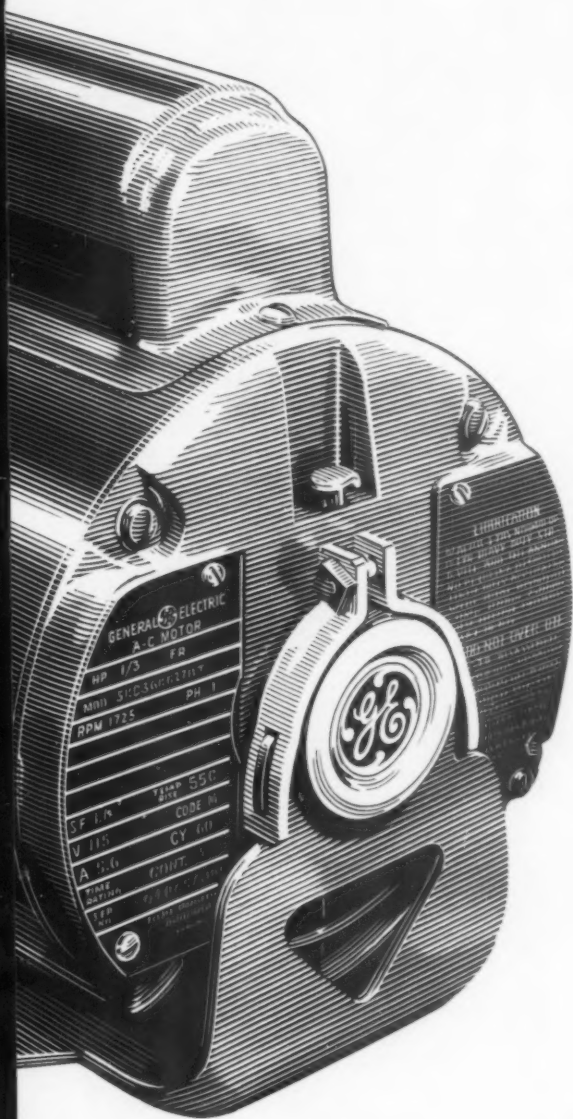
Write No. 23 on Inquiry Card—Page 32  
For More Information Write No. 221  
on Inquiry Card—Page 32→

NOW IN  
G-E FORM G  
MOTORS

# 27

## EXTRA VALUE FEATURES

...to help you improve  
design and quality,  
cut maintenance and  
assembly costs

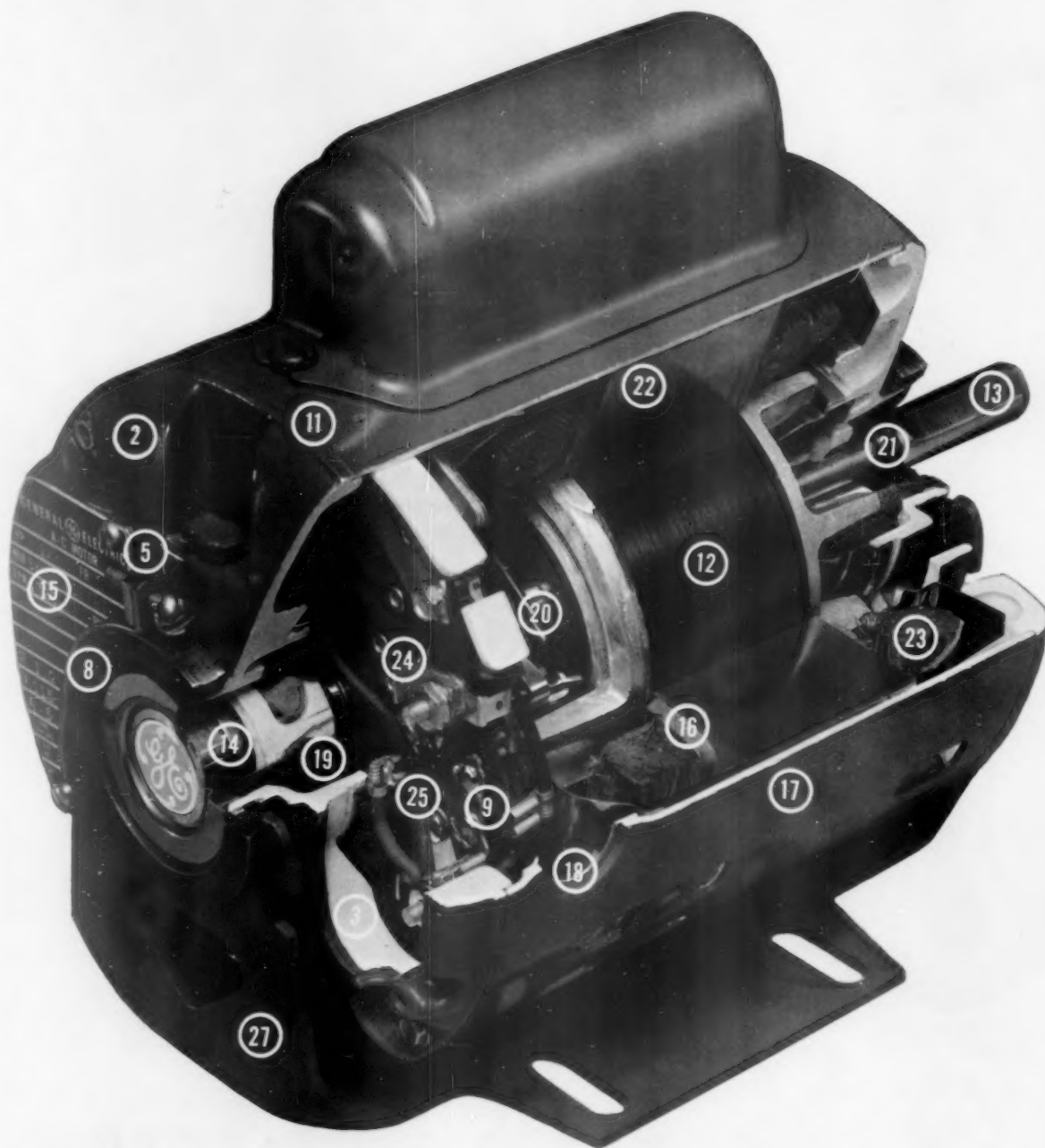


GENERAL  ELECTRIC



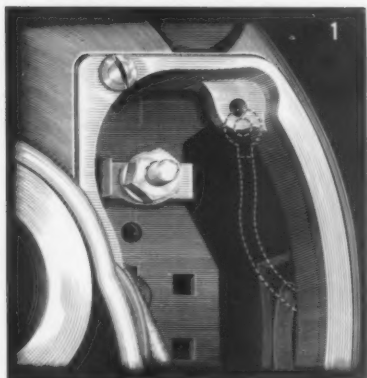
# FORM G MOTORS

\* Including many brand-new features indicated with red. Together with the many performance-proved Form G features, they add important EXTRA VALUE to General Electric "years ahead" motors. Investigate each of these features carefully. Ask yourself, "How much can I benefit by taking advantage of this Form G feature?"



Nos. 1, 4, 6, 7, 10 and 26 not shown on cutaway.

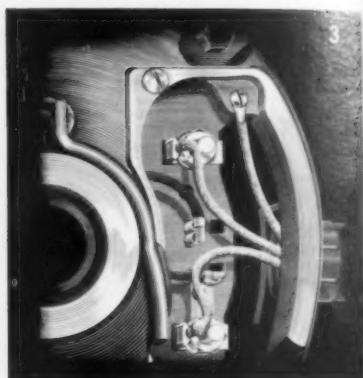
# -27 REASONS\* FOR



**NEW! PERMANENT GROUNDING**—with built-in lug you can quickly make ground connections—meets UL standards.



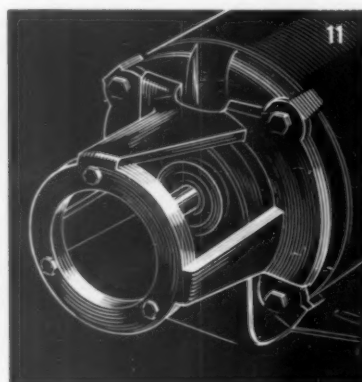
**BETTER ALIGNMENT**—rugged, disk-type end shield places rabbet and bearing in same plane, means accurate bearing alignment.



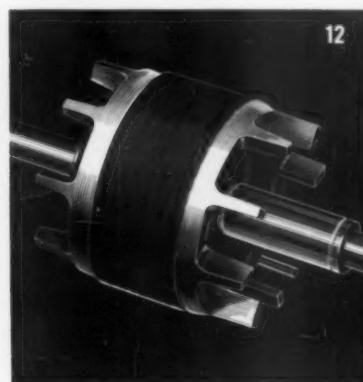
**NEW! EASIER WIRING**—enlarged wiring compartment affords easier connections, saves assembly time and costs.



**LIGHTER, SMALLER**—50% lighter, 40% smaller than old-style models, the new Form G costs less to handle, install, ship.



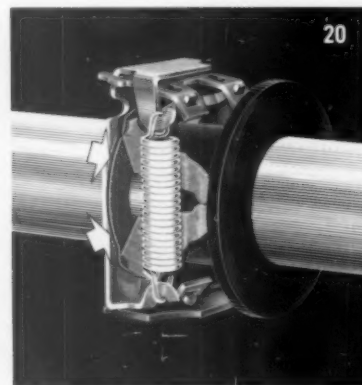
**MACHINED END SHIELD O.D.**—close tolerances make possible direct mounting to your product without costly machining.



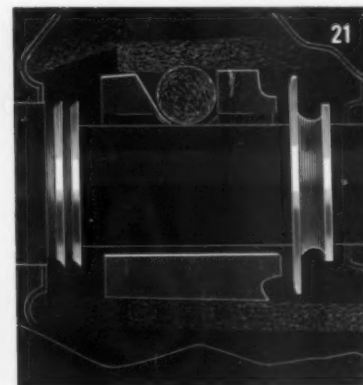
**LONG LIFE**—dynamically balanced rotors of cast aluminum are virtually indestructible; contribute to quiet operation.



**LONG BEARING LIFE**—three-wick lubrication system bathes shaft with clear, filtered oil, providing long motor life.

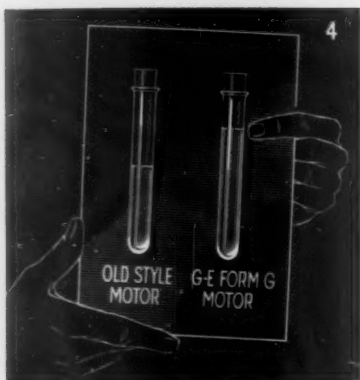


**NEW! QUIETER SWITCH**—specially designed washer cushions start-stop click, maintains positive snap action.



**POSITIVE OIL RETENTION**—rubber and metal oil throwers return oil from shaft to wicks, giving exceptional oil retention.

# YOU TO BUY NOW



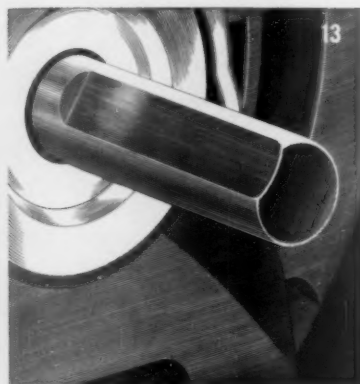
**LONG LUBRICATION LIFE**—over 50% more oil than in old-design motors contributes to motor's doubled lubrication life.



**NEW! BETTER APPEARANCE**—bright-plated motor hardware looks better longer, resists rust and corrosion.



**ALL-ANGLE OPERATION**—specially designed bearing and oil retention system allows you to mount Form G's in any position.



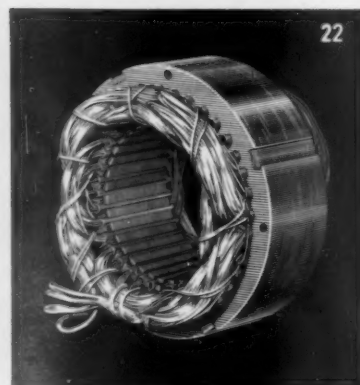
**NEW! SHAFT PROTECTION**—special gun-metal-like treatment of shaft resists rust, simplifies product service.



**THRUST ABSORPTION**—unique thrust washer assembly withstands normal thrust from any direction regardless of motor angle.



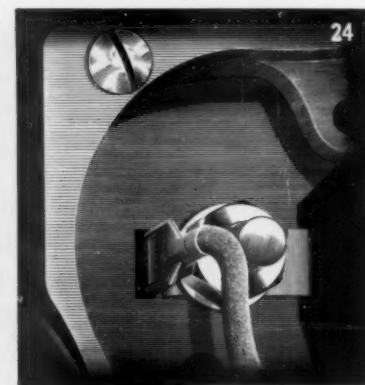
**NEW! PERMANENT DATA**—engraved, paint-filled nameplate is more legible; simplifies selection, installation.



**NEW! LONGER LIFE**—heavy-duty bonding dip and stator clamps help provide a more rigid, unitized assembly.

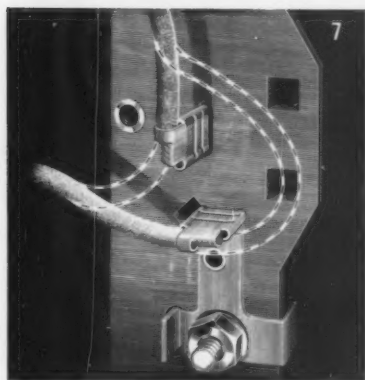


**LONG INSULATION LIFE**—Formex\*\* wire in Form G motors can be bent, twisted, crushed, yet retains its insulating ability.

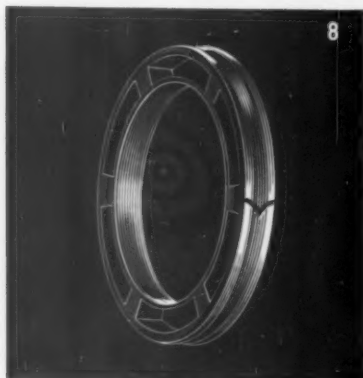


**NEW! FASTER CONNECTION**—plug-in connectors on external and internal terminals cut installation time 50%.

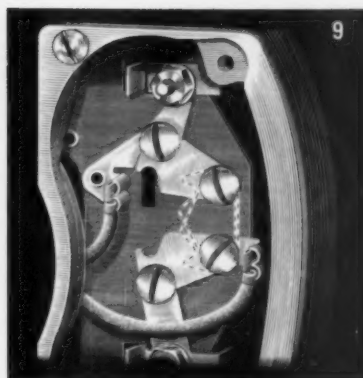
# FOR EXTRA VALUE!



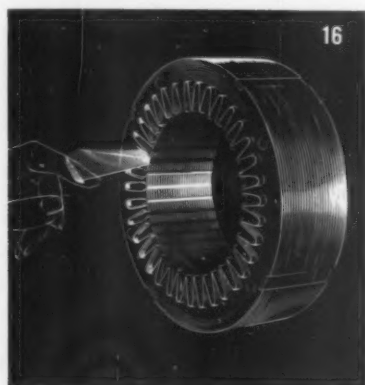
**NEW! FAST ROTATION CHANGE**—quick connects make changeover fast and positive. Just switch two motor leads.



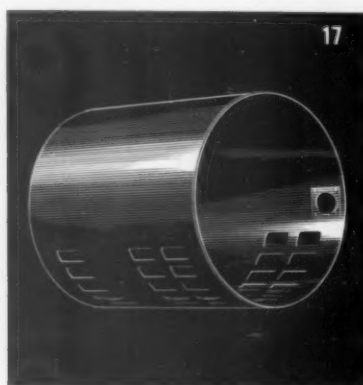
**QUIETER OPERATION**—improved mounting rings provide greater resiliency, and contribute to quieter motor operation.



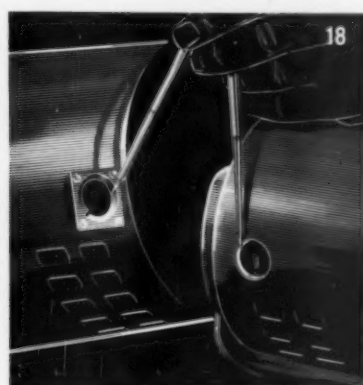
**NEW! FAST VOLTAGE CHANGE**—ingenious sliding plates let you switch from 115v to 230v or vice versa in seconds.



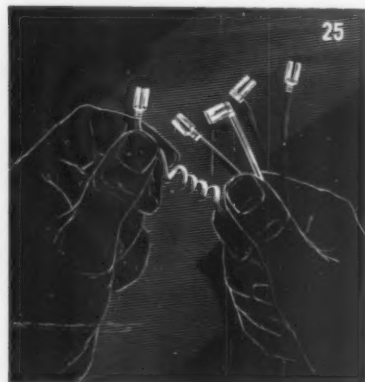
**LONG LIFE**—Mylar† has 35 times the moisture resistance, 8 times the dielectric strength of ordinary paper insulation.



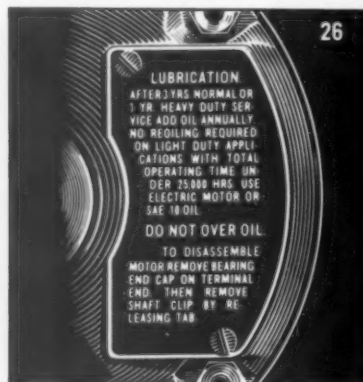
**RUGGED CONSTRUCTION**—sturdy steel shell keeps end shields accurately aligned, protects motor from rough treatment.



**FAST CONDUIT CONNECTION**—speed nut, securely welded inside motor shell, reduces conduit connection time 50 per cent.



**LONG LEAD LIFE**—braided neoprene leads resist heat, moisture and aging; and are color-coded for easy identification.



**NEW! MORE LEGIBLE INSTRUCTIONS**—oiling instructions, lithographed on terminal box cover, stay legible.



**MOUNTING VERSATILITY**—resilient and solid cradle bases permit rotation of G-E motor within base to meet design needs.

†Reg. trademark of duPont Co.

\*\*Reg. trademark of General Electric Co.

PULL TAB

## ... And Here's How These G-E MOTOR EXTRA VALUES CA



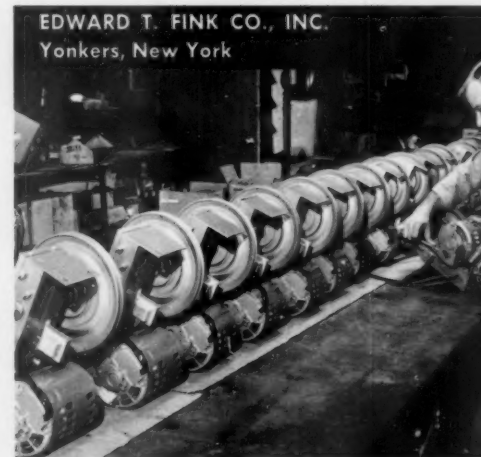
**DEPENDABILITY PLUS**—"Our controlled volume pumps and chemical feeding system are highly accurate devices used for metering corrosive chemicals. We demand absolutely dependable motors. Power failures can be expensive for our customers and detrimental to our reputation. The Form G answers our needs completely. Its many features assure built-in dependability and top-notch performance."



**PRACTICALLY MAINTENANCE-FREE**—"Using G-E Form G motors on our Keenco Automatic Poultry Feeders has proved to be a practical and profitable way to meet customer demands for continuous, dependable service with virtually no maintenance. We're convinced that the many features in General Electric motors add real extra value to our products—and help us gain extra customer satisfaction."



**SAVE \$9 PER UNIT**—"When we started using G motors exclusively on our egg washers we realized these benefits: (1) we now save 27 man-hours every 25 units produced; (2) we save about \$9 per machine because the close tolerances of the Form G end mounted motor eliminate special mounting brackets; (3) our product is now much smaller and lighter; and (4) we've been able to reduce our 'Cascade' unit price by \$15."



**VERSATILE MOUNTING**—"We've realized big savings by using Form G motors on our Edwards automatic door operators. For instance, the cradle base which lets the motor rotate to any position can be installed in our equipment before we mount the motor, means faster assembly. The Form G's small size has also allowed us to design a lighter, more compact and attractive unit. We've had no complaints since switching to G-E motors four years ago."

# CAN PAY OFF FOR YOU

STAR PUMP AND COOLER COMPANY  
St. Louis, Mo.



**ALL-ANGLE MOUNTING**—"We've standardized on G-E Form G motors for our Star Milk Coolers for two big reasons: (1) it requires no special end shield or bearings for shaft-down mounting and we can use simple through bolts to mount it; (2) it requires minimum maintenance even under severe climatic conditions."

LOREN COOK COMPANY  
Berea, Ohio



**INCREASED SALEABILITY**—"Form G motors have resulted in a big weight saving, giving our ventilators a sizeable competitive edge. Also, we especially like G.E.'s Small Motor Service Station Plan which assures customers fast, local service if needed. Because of this excellent service we use General Electric motors exclusively."

B-I-F INDUSTRIES, INC.\*  
Providence, R. I.



**66% SMALLER SIZE**—"Compactness and high power per pound makes General Electric motors ideal for our proportioning pumps. Using Form G motors permits a 66% size reduction, a 50% pumping capacity increase and a 50% price reduction."

\* PROPORTIONERS DIVISION

Full line of  
G-E Form G  
motors



**NOW WITH NEW  
EXTRA VALUE**

You can now get these 27 General Electric Extra Value Features on the complete Form G line.

Like these manufacturers, you, too, can get real extra value by specifying Form G motors. Over 850 basic models—and thousands of variations—will soon be available in quantity, equipped with the new extra value features. And in most cases, there's a standard Form G motor to meet your exact product requirements, eliminating the need for costly "specials."

BUY NOW  
FOR EXTRA  
VALUES



GENERAL  ELECTRIC

# HAVE YOU PERSONALLY REVIEWED THE G-E FORM G MOTOR STORY RECENTLY?

**DO YOU KNOW** that *only* General Electric offers you a *complete* line of fhp motors in the new, compact design? And *only* from General Electric can you get *all* these 27 important features, including the **NEW EXTRA VALUE FEATURES**. It *pays* to standardize on G.E.'s full line of "years ahead" motors. Why not investigate them today?

Start by calling your General Electric Sales Engineer. Ask him to review with you the Form G story just as soon as possible. He has a complete schedule of the availability of the new extra value features and he'll be glad to show you exactly how you, too, can gain all the important advantages of General Electric Form G motors.

702-88

# BUY NOW FOR EXTRA VALUES



*Progress Is Our Most Important Product*

**GENERAL  ELECTRIC**

*The spotlight is on*  
**ALLMETAL**



Allmetal specializes in all types of stainless steel fasteners; screws, nuts, bolts, washers, rivets, pins, 'AN' fasteners, etc. Batteries of cold headers and automatic screw machines ready to turn out special fasteners to your specifications. Now! Sales offices in the East, Midwest and West for fast local service direct from the manufacturer. Call the Allmetal office nearest you—you can receive the fasteners you need the very next day.

**SEND NOW FOR YOUR COPY OF ALLMETAL'S 52 PAGE STAINLESS STEEL FASTENER STOCK LIST AND DATA BOOK**

**ALLMETAL**  
SCREW PRODUCTS COMPANY, INC.



MANUFACTURERS OF STAINLESS STEEL FASTENERS  
821 STEWART AVENUE • GARDEN CITY • LONG ISLAND, N. Y.

MIDWEST DIVISION  
WEST COAST DIVISION

6424 WEST BELMONT AVENUE • CHICAGO 34, ILLINOIS  
582 WEST WASHINGTON BLVD. • CULVER CITY, CALIFORNIA

*the safest way to move your personnel*



Because it's safer,  
Wheaton Transit Insurance  
rates are 20% less than  
any other major carrier's.

**Wheaton**  
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COAST TO COAST LONG DISTANCE MOVING

In the West, call

OVER 500  
AGENTS IN ALL  
PRINCIPAL CITIES

**LYON**  
VAN LINES, INC.

General Offices: Indianapolis, Indiana

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**THE MOST COMPLETE SOURCE  
ON THE EAST COAST**

**For Every  
IMPORTANT  
FASTENING**

- MACHINE SCREWS
- WOOD SCREWS
- CAP SCREWS
- BOLTS-NUTS-WASHERS
- TUBULAR RIVETS
- SHOULDER RIVETS
- COLD HEADED  
PRODUCTS
- IN ALL METALS
- IMMEDIATE DELIVERY
- Catalog on Request
- AUTHORIZED DISTRIBUTORS
- PARKER-KALON PRODUCTS
- SHAKEPROOF PRODUCTS

**KEYSTONE BOLT & NUT CORP.**

ESTABLISHED 1922  
135-P CHURCH ST. WO 4-4600 NEW YORK 7, N.Y.  
NASHVILLE, TENN. SALES & WAREHOUSE 919 5th AVE. SOUTH

For More Information Write No. 224 on Inquiry Card—Page 32

## Products

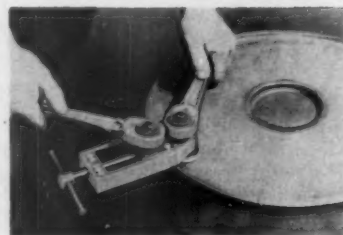
### Continuous, Automatic Chemical Analysis



The Technicon AutoAnalyzer, a system for continuous, automatic chemical analysis, in laboratory or plant, detects trace materials down to parts per billion with an accuracy of 1%. Automates each step of a chemical analysis; i.e., measuring, mixing, purifying, processing, comparing, and recording. Runs twenty or sixty tests per hour without human supervision. Can be hooked up to the process or waste stream, liquid or gas. Concentration level of any material or number of materials can be continuously monitored and permanently recorded. Control loop can be closed to automatically monitor the steady-state control devices or otherwise regulate the process through "on stream" continuous measurement. Technicon Controls, Inc., Chauncey, New York.

Write No. 24 on Inquiry Card—Page 32

### Low Cost Steel Drum Head Cutter



Head cutter for cutting out heads on "one trip" steel containers is hand operated, portable, and light weight. Cutting time for thin-wall containers is 2 minutes or less. Will cut heads of steel shipping drums, 20 to 28 gauge, 10 to 55 gallon capacity and 10" to 24" diameter. Safety feature: pressed-in flange at top of container, made in cutting operation.

(Please turn to page 120)

Missing Something ?



The Answer is Pink !



## Switch to <sup>PINK</sup> CIMCOOL

Yes, if you're missing that extra something in *your* shop, try CIMCOOL for metal cutting jobs. The famous CIMCOOL<sup>®</sup> family of cutting fluids covers every job, every type of work and metal. Discover how the famous pink cutting fluid can lower costs and increase production in your plant.

Here are three reasons why CIMCOOL has become the largest selling chemical cutting fluid in the world:

**CIMCOOL LOWERS COSTS** because it's longer lasting in machines. Therefore, it reduces downtime and cuts labor costs for cleaning and changing.

**CIMCOOL PERMITS FASTER SPEEDS** and feeds, because of its chemical lubricity. It combines friction reduction and cooling capacity in a degree never before attained by old fashioned lubricants.

**CIMCOOL IS CLEANER TO USE** because it doesn't soil hands or clothing. It contains no skin irritants. And it's safer because it leaves no slippery film on shoes, floor, machine or work. It can't smoke, can't burn, and virtually eliminates rancidity and foul odors.

So don't keep things *under* your hat... call your CIMCOOL Distributor today. He'll be glad to give you full information on all the advantages of CIMCOOL Concentrate—as well as details on the entire family of CIMCOOL Cutting Fluids. **YOU** may be missing something!

Or contact us direct and we'll have one of our Cincinnati Milling trained machinists call on you—without cost or obligation, of course. Write, wire or telephone, Sales Manager, Cincinnati Milling Products Division, Cincinnati 9, Ohio.

### CIMCOOL CUTTING FLUIDS

**CIMCOOL 52 Concentrate**—The famous pink fluid which still covers 85% of all metal cutting jobs. Effective, economical and clean.

**CIMPLUS**—The transparent grinding fluid with exceptional rust control. Also used for machining cast iron and as a water conditioner with CIMCOOL Concentrate.

**CIMCUT Concentrates (AA, NC, 55)**—For jobs requiring oil-base cutting fluids. Added to mineral oils, they give economical mixes for higher speeds and feeds.

**CIMCOOL Tapping Compound**—Permits the use of highest tapping speeds and increases tap life amazingly.

Also, **CIMCOOL Bactericide** and **CIMCOOL Machine Cleaner**.



for 100% of all metal cutting jobs. The Answer is Pink!

Production-proved products of The Cincinnati Milling Machine Co.

© Trade Mark Reg. U.S. Pat. Off.



## CORRECT FASTENER SELECTION AVOIDS COST PENALTY

● A fastener survey can reveal many opportunities for savings

● Cut costs without cutting strength or safety of connection

It's a mistake to pay premium prices for fastener properties you neither need nor use. While costly alloys have their place, most times the three grades of steel used in standard bolts and nuts can do the job and save money.

**Example:** Specification calls for alloy bolts with strength of 145,000 psi. But in assembly, they're tightened to just 30,000 psi. This gives no more strength to the joint than a far more economical Bright Cap Screw tightened to same load. The change would save a substantial sum.

Reducing size also saves. Remember that a fastener's job is to hold an assembly together. *Holding power* is what you should buy, rather than size or number of pieces.

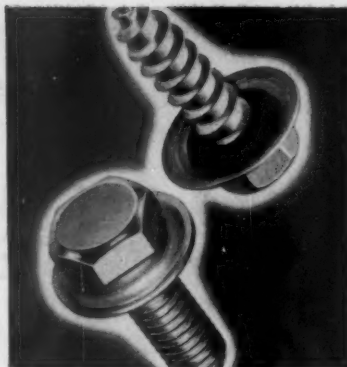
**Example:** Product requires fasteners with a safe load capacity of 20,000 pounds. Bright cap screws of

$\frac{1}{4}$  inch size will do it; but so will  $\frac{3}{8}$  inch High Tensile Bolts—at less cost. Actually, to get the same holding power as in \$1.00 worth of the high tensile fasteners, you would need \$1.50 worth of bright cap screws.

All this just touches on a valuable story for any manufacturer using standard fasteners. Worth a call to hear what it holds for you? Contact Russell, Burdsall & Ward Bolt and Nut Company,



**Plants at:** Port Chester, N. Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. **Additional sales offices at:** Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. **Sales agents at:** Milwaukee; New Orleans; Denver; Fargo. **Distributors from coast to coast.**

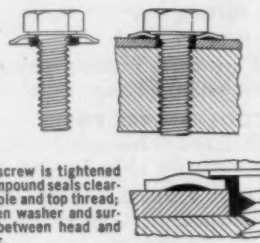


### SPIN-SEAL\* screws give leakproof fastening

for flat or curved sheet materials

Here is a new type of composite fastener that seals by means of a unique flow-in sealant and washer.†

Concave in shape, the heat treated springy washer confines and controls the flow of sealing compound. Tightening the screw forces sealant into various spaces around (1) threads, (2) head, and (3) clearance hole to give hermetic sealing.



When screw is tightened the compound seals clearance hole and top thread; between washer and surface; between head and washer.

The washer has ability to conform to curved surfaces and still seal securely against hydrostatic pressures and wind driven water.

#### ONLY THE SCREW TURNS

Washer does not turn with the screw. This prevents twisting or tearing the sealing "gasket", mar-ring of polished surfaces, or gouging of painted finishes.

The flow-in gasketing compound is plastic rather than elastic. Stable and non aging, it won't split or ozone-check under pressure. It gives controlled flow into clearance spaces. Compounds are available to seal out water or oil.

Send for Bulletin SS-1A. \*T.M.

† U.S. & Can. Pats. Pend.

RB&W FASTENERS—STRONG POINT OF ANY ASSEMBLY

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For More Information Write No. 227 on Inquiry Card—Page 32→  
PURCHASING



## He's equipping this machine with the "Touch of Gold"

Grinding is always a profit-producing step in metal working. That's why the grinding wheel itself is so important — and why Norton world leadership in grinding is important to you when you specify grinding wheels.

Because a Norton wheel, contacting the work in process, is always adding the "Touch of Gold" . . . creating value and

usefulness through improving the fit and finish of the product. The right wheel for each job is the key to having each job done right . . . which is the real secret of profitable production. And Norton stocks more than 200,000 types and sizes of grinding wheels to make your "Touch of Gold" quickly available. Plants and distributors all around the world.

NORTON COMPANY, General Offices,  
Worcester 6, Massachusetts.



Making better products . . . to make your products better

meet  
Mr.  
Flexon.

a good man  
to know  
when  
you buy hydraulic hose



FLEXON REUSABLE FITTINGS save time and money. All are equipped with Easy Grip Hex on stem for safe, speedy insertion into hose without the use of special mandrels.



FLEXON CRIMPED-ON FITTINGS are factory attached to provide complete hose assemblies to your specifications.



FLEXON DYNALOCK FITTINGS are the ultimate in a clamp type reusable fitting.



FLEXON ADAPTORS, UNIONS & CONNECTORS are available in a complete range of sizes and types for all services.

We're all looking for the best value, these days. But when it comes to hydraulic hose connections, a lot of factors have to be weighed to properly evaluate the overall value received. So let's take a look at these factors:

1. **FIRST COST**—mighty important, but it's rarely that you get a bargain on the basis of first cost alone.
2. **LENGTH OF LIFE**—when figured in conjunction with first cost you begin to get a better measure of actual cost.
3. **EASE OF INSTALLATION**—if you have difficulty assembling the hook-up for your requirements you can wipe out all the savings in Factors 1 and 2.
4. **MANUFACTURER'S SERVICE**—from the standpoint of prompt delivery and even more so from the standpoint of the technical aid, the service the manufacturer gives can provide the greatest value of all.

What does all this have to do with Mr. Flexon? He is the symbol of the Flexonics manufacturing and sales-service policies based on giving the buyer real hose value as outlined in the four points listed above. Talk to your local representative of Mr. Flexon, the next time you need hose. He's a good man to know, too.



Mr. Flexon identifies products of Flexonics Corporation that have served industry for over 56 years.

**Flexonics Corporation** HOSE DIVISION RH-15

1316 S. Third Avenue • Maywood, Illinois  
In Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario  
Manufacturers of metal and rubber hose, expansion joints, metallic bellows and aircraft components.

For More Information Write No. 228 on Inquiry Card—Page 32

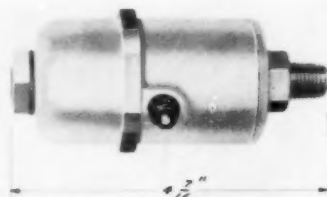
## Products

(Continued from page 116)

Flange permits drum to be completely emptied without contents adhering to ragged or saw-tooth crevices, which are created when other methods are employed. Leaves no jagged edges and does not create metal particles which could mix with contents of loaded drums and later damage processing machinery. Michael A. Schinker Mfg. Co., 6514 S. Western Ave., Chicago, Ill.

Write No. 25 on Inquiry Card—Page 32

### Combination Filter-Solenoid Valve Is 20% Lighter



A combination filter and solenoid valve is only 4-7/16 inches long and can be used with any LP-Gas carburetor installation. Called the Filterlock Model FL-417, it features a straight-through design requiring only two connections and shows a weight saving of 20% over separate filter and solenoid. It will operate in any position and either filter or solenoid may be disassembled separately. Filter section has a replaceable, cleanable, sintered bronze element which traps particles as small as .001. Solenoid is internally grounded with a single automotive type terminal for connection to the "hot" wire. Unit is available in either 6 or 12 volt direct current from Beam Products Mfg. Co., Los Angeles, California.

Write No. 26 on Inquiry Card—Page 32

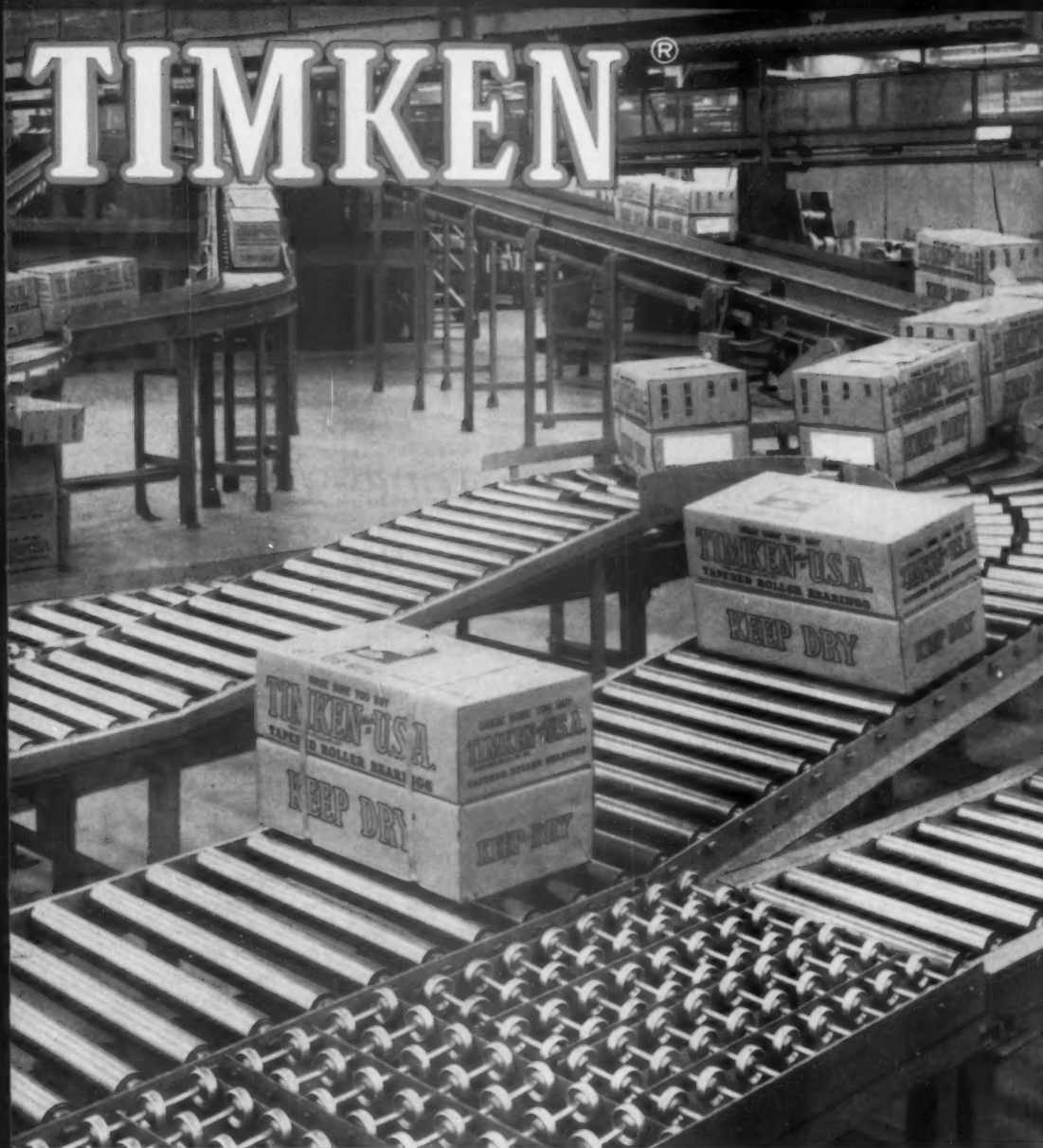
**FOR MORE INFORMATION  
USE INQUIRY CARD  
PAGE 32**

For More Information Write No. 229  
on Inquiry Card—Page 32→

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# B E A R I N G S



Bearings from our 5 plants arrive at our huge, new Shipping Center every day—and are moved efficiently to and from the storage area on an ultra-modern conveyor system.

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We've developed a revolutionary new system in warehousing, order processing and shipping that gets your Timken® bearings to you faster than ever. The system is based on integration of the latest electronic computer with a new \$3,000,000 shipping center at Bucyrus, Ohio. Here's how it reduces processing time for your order. You get an acknowledgement and shipping date on most orders within 24 hours. It cuts shipment and invoice preparation time. It sends your order of bearings up to 14" O.D. complete from one shipping point, consolidates your orders having the same shipping date. By controlling our production, it helps assure delivery when promised. And it gives you almost unlimited supply of tapered roller bearings from our normal inventory of over 12 million bearing parts. For fastest service, buy "TIMKEN", now more than ever your No. 1 bearing value. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".



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1. Quality you can take for granted
2. Service you can't get anywhere else
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**THE NEWEST CONCEPT  
IN WIRE ROPE**

*Herringbone\**

*two  
ropes in  
one!*

Here is a combination that has proved itself during three years of field testing. A welcome addition to Roebbling's great line of wire ropes, Royal Blue *Herringbone* is both a regular lay and lang lay wire rope!

So, in one rope you have the greater flexibility and abrasion resistance of lang lay construction *plus* regular lay's superior stability under severe operating conditions.

Preformed Herringbone is made of two pairs of lang lay strands, and two strands of regular lay which separate the two pairs of lang lay—all of it made of Type 1105 rope wire.

For three years Herringbone has been used for general hoisting, holding and

closing lines, shovel ropes, wagon scraper ropes and dragline ropes. Without reservation, its performance has been superior to that of any other rope used for the same jobs... even in the hands of inexperienced personnel! *Its proven capabilities clearly suggest its use for all jobs where steel core ropes are normally used.* See your Roebbling salesman for all the facts or write Wire Rope Division, John A. Roebbling's Sons Corporation, Trenton 2, New Jersey. Roebbling Herringbone, the two-in-one rope to meet the doubly stringent demands of today's economy.

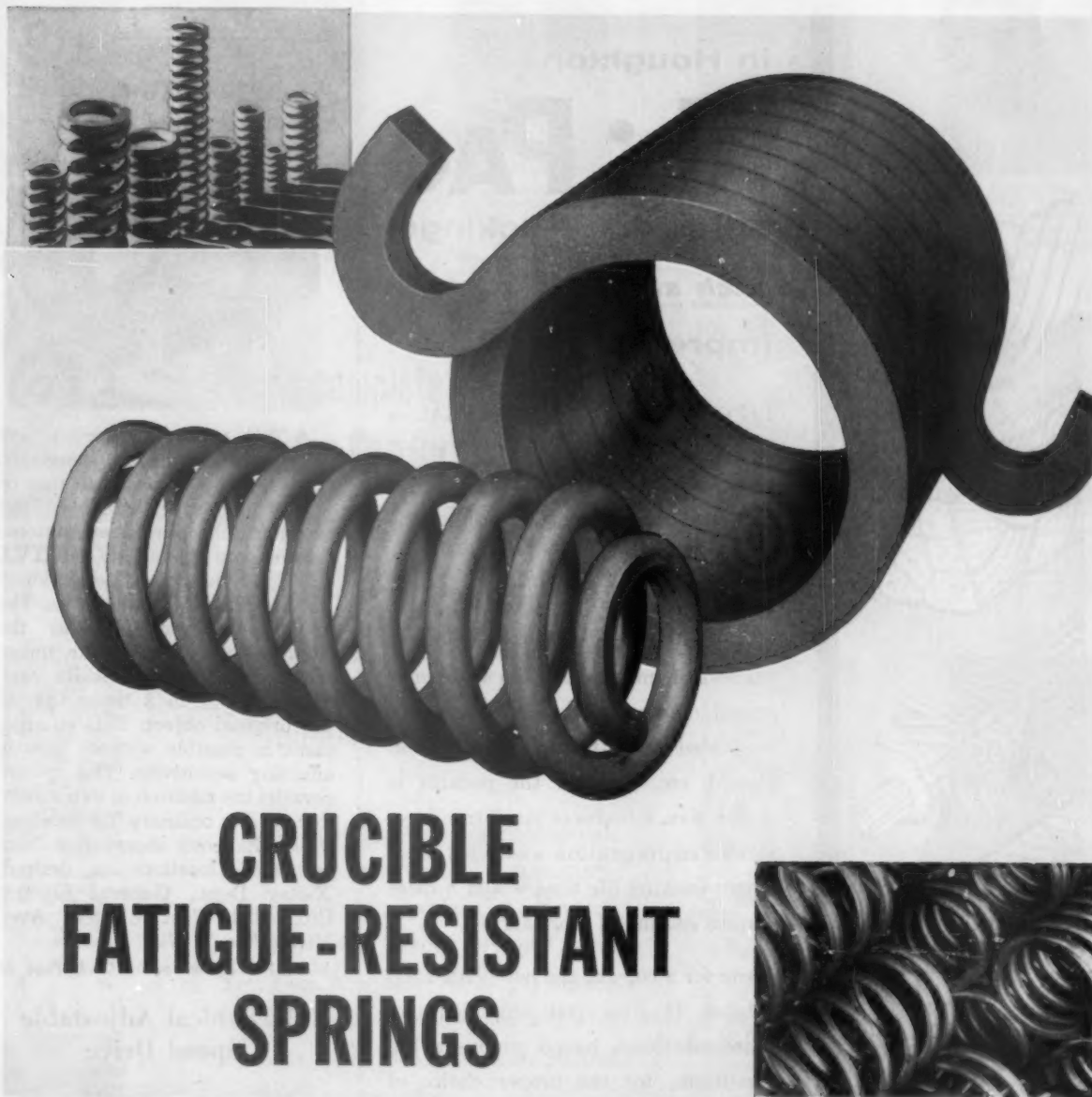
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**HERRINGBONE**  
**WIRE ROPE**



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Crucible *fatigue-resistant* springs have far greater durability than ordinary springs. Furthermore, these springs, section for section, can take heavier compressive, tensile or torsional loads than ordinary springs. That's because they're *shot peened*. This process imposes a compressive stress on the spring surfaces that offsets stresses set up in service. It also conditions the surfaces, and eliminates minute stress concentration points which could

lead to premature failure in a conventional spring.

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Ready to give you on-the-job service

For More Information Write No. 232 on Inquiry Card—Page 32

## Products

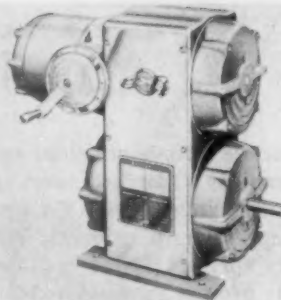
### Step Toward Automated Quality Control



A TVX x-ray image intensification system permits economical 100 percent product inspection on a television-type screen, 10,000 times brighter than a conventional fluoroscopic image. The new TVX is bright enough for easy viewing in normally lighted areas. The viewing monitor provides the product inspector with an image size which is electronically variable from 1/2 to 3 times that of the original object. This enlargement is possible without greatly affecting sensitivity. The system permits the addition of extra monitor, or any ordinary TV receiver, if simultaneous observation from separated locations is desired. X-Ray Dept., General Electric Co., 4855 West Electric Ave., Milwaukee 1, Wis.

Write No. 27 on Inquiry Card—Page 32

### Mechanical Adjustable Speed Drive

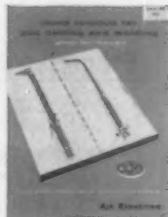


A mechanical adjustable speed drive offers infinitely adjustable speed over ranges up to 8:1. The drive operates from an A.C. source and is available in ratings from 1 to 20 HP with output speeds of 1 to 10,000 RPM. Basic

(Please turn to page 126)



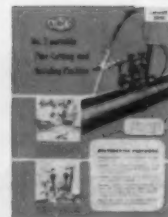
Catalog 806 describes the complete quality line of Airco cylinder, manifold, and pipeline Gas Regulators. For a copy, send coupon below.



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For More Information Write No. 233 on Inquiry Card—Page 32

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1887**



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Quality-conscious production methods call for modern materials... even down to your nut-and-bolt assemblies. Now you can buy Milwaukee WASHED WASHERS to promote cleaner workmanship, cleaner product-assembly, and upgrade the morale of production workers through a thoughtful regard for personal cleanliness.

Today, all popular sizes of Milwaukee U. S. Standard and S.A.E. Washers, Rivet Burrs and Machinery Bushings are *washed* by a special process that removes all oil, graphite or other grime. In addition, this Milwaukee Wrot Washer washing process includes rust resistant treatment.

Since the introduction of this improved processing of Milwaukee Wrot Washers, Industry has responded with a most enthusiastic vote of approval. Many production orders specify "WASHED WASHERS"... but whether you specify "Washed" or not, that's the way they are supplied... clean washers for clean workmanship and clean workers... to match your highest production standards.

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*The World's Largest Producer of Washers*

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A8-9516-A

## Products

(Continued from page 124)

components of the drive can be rearranged in the field to meet changing industrial requirements and to minimize stocking needs. This permits vertical or horizontal mounting of units on floor, wall or ceiling; location of output shaft and motor in any of four positions; and location of speed changing mechanism on top, right or left of motor housing. Louis Allis Co., Dept. P, 427 E. Stewart St., Milwaukee 1, Wis.

Write No. 28 on Inquiry Card—Page 32

### Drum Vent for End Bug Installation



Vent prevents drum rupture and loss of contents even in the extreme condition when drum is completely surrounded by fire. Designed to provide complete protection for all 55-gallon steel drums with the 2" bung opening located in the head. Used when drums are placed in a horizontal position for storage or dispensing. Automatic pressure relief against interior vapor build-up is provided. An automatic valve opens at 5 lbs. p.s.i. to relieve interior pressure. A fusible plug melts at 135 degrees F to provide quick emergency pressure relief in the event of fire. Vent has an extra thick gasket seal which compresses when screwed into the threaded bung opening to secure a tight, leak-proof connection. Pressure-vacuum relief passages are located above the full liquid level of the drum to insure against leakage. All vent passages are covered by a perforated metal fire baffle to prevent propagation of fire and explosion into the drum. Protectoseal Co., 1919 and S. Western Aves., Chicago, Ill.

Write No. 29 on Inquiry Card—Page 32

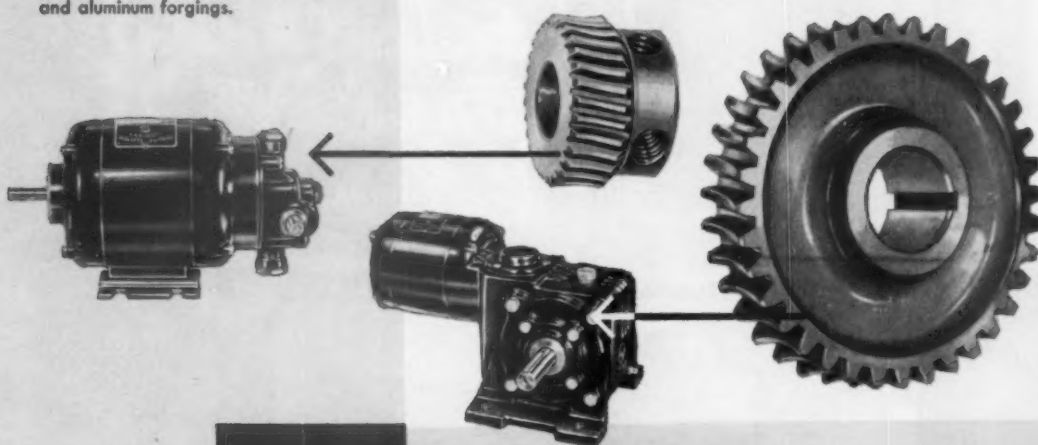
For More Information Write No. 234 on Inquiry Card—Page 3

# MUELLER BRASS CO. forged gears improve dependability and performance of BODINE electric motors

For combined high shear strength and maximum wear life in their single and double reduction speed reducer motors, Bodine Electric Company of Chicago uses gears forged from Mueller Brass Co. 603 Alloy.

Bodine has specified Mueller Brass Co. forged gear blanks because of their consistently high quality . . . there is no porosity, foreign inclusions or defects typical of cast blanks. The hot working of the metal followed by heat treatment to the desired physical properties produces a refined grain structure to give uniform machining and wear in service. The forged blanks are consistent in size and held to close tolerances. Bodine has also found that the excellent machinability of the blanks in the hobbing operation increases overall hob life.

For forgings of high tensile strength, high density, minimum porosity, light weight, corrosion resistance, good machinability and low costs with little scrap loss, it pays to specify forgings from the Mueller Brass Co., the world's largest producer of brass, bronze and aluminum forgings.

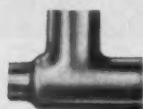


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can offer unbiased advice on the "one best way" of producing your parts, because Mueller Brass Co. is the only fabricator in the country offering all these methods of production . . . assuring you the best product at the best price . . . made the one best way.



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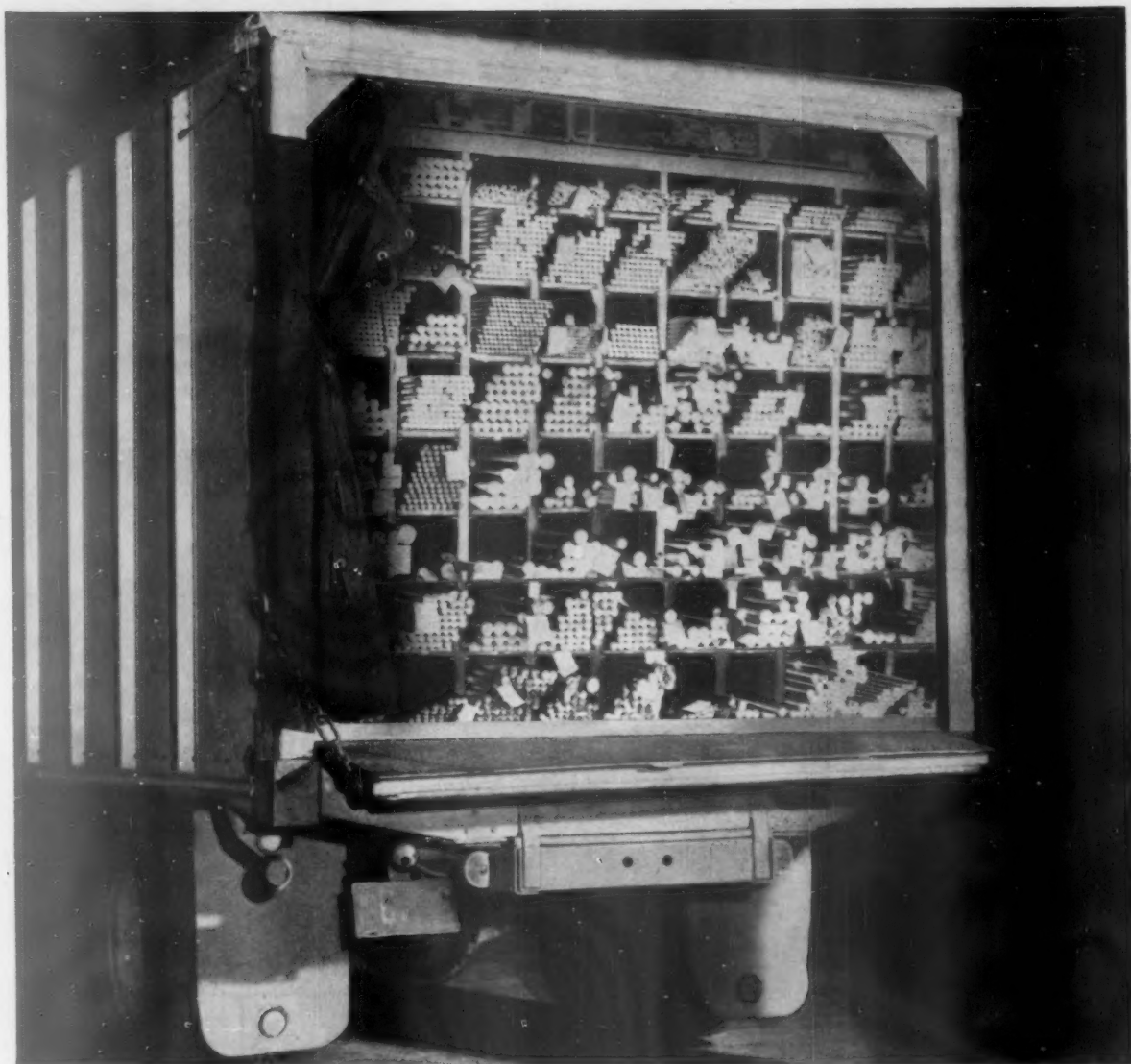


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Also producers of: Super Cutting Red Tip Brass Rod • Aluminum Extrusions Aluminum Sheet, Coil and Strip • Plastic Pipe and Fittings • Copper Tube and Solder Type Fittings •

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## Office Equipment and Supplies



A new model **printing calculator** has a separate "finger-shaped" keyboard for rapid and accurate multiplication. The machine automatically performs the multiplication by the number on the key depressed. All figuring is eliminated; the operator has only to set up the multiplicand and the multiplier on the keyboard. When the total key is depressed, the result is obtained instantaneously. This new model also has automatic subtract-multiplication and an exclusive decimal point indicator which can be set in any one of nine different positions. Produced by **Addo-X, Inc., 300 Park Avenue, New York 22, N. Y.**, the new model is actually two machines in one; it is a calculating machine as well as a duplex adding machine. Write No. 30 on Inquiry Card—Page 32



A new office **printing machine** to print directly from photo and typing plates onto paper is being marketed in this country by **Copy-Craft, Inc., 105 Chambers Street, New York City**. Called the **Ormig Lithoset**, up to 50,000 copies of lithography can be produced direct from photo plates, and up to 20,000 copies from direct typing plates. Fully automatic, one knob controls flow of ink, and fountain solution never

needs adjustment. The machine can be preset for quantity needed, and automatically stops when the desired quantity is produced. The outstanding feature of the new machine is that it is designed not for offset but for direct lithography. The printing plate is brought into direct contact with the paper. There are only two cylinders used and no blanket. Write No. 31 on Inquiry Card—Page 32



A new, all steel furniture line recently introduced by **Remington Rand Division of Sperry Rand Corporation** was designed to fit businessmen's exact work needs and decorative tastes. The color, styling and design creates an atmosphere of individuality and distinction, yet provides a comfortable, practical work area. Whether it be an L-shape or U-shape grouping these custom-planned combinations afford maximum efficiency in a minimum amount of floor space. Write No. 32 on Inquiry Card—Page 32



A new collection of ten lightly scaled contemporary walnut **occasional chairs** for the office has been introduced by **Niemann, Inc., 469 East Ohio Street, Chicago**. Both low, semi-lounge chairs and conference-height chairs are included in the new pull-up chair collection. Although

varied in style, the chairs are all correlated and designed to blend with popular contemporary wood office furnishings or accent metal, glass and marble furnishings.

Write No. 33 on Inquiry Card—Page 32



New card record desks in contemporary design and in two sizes were recently introduced by **Yawman and Erbe Mfg. Co., Inc., Rochester, N. Y.** Drawers are equipped with heavy-duty, full, ball-bearing roller suspension. In the seven-drawer model, designed for 5x3 cards, up to 94,000 cards are instantly available in one cabinet. Newly styled filing drawer pulls are equipped with a double thumb latch for right or left hand operation.

Write No. 34 on Inquiry Card—Page 32



A handy, new **utility step** for use in reaching tops of cabinets and storage areas is now available from **Cramer Posture Chair Company, Kansas City, Kansas**. Called the "Kik-Step" it can be rolled to wherever it is needed. When weight is applied, the spring-loaded casters retract and the base grabs the floor. The slightest pressure depresses the base so it cannot roll when in use.

Write No. 35 on Inquiry Card—Page 32  
For More Information Write No. 238  
on Inquiry Card—Page 32→  
PURCHASING



Melvin C. Holm, Vice President and Treasurer, Carrier Corporation

## "Moore forms helped us cut inventory"

CONTROL SPEEDS CARRIER MARKET FORECASTS, PLOTS PRODUCTION FOR ON-TIME SHIPMENTS

A new Planning and Production Control System gives Carrier Corporation a competitive edge by speeding shipment of its air conditioning units. Sales forecasts — the first stage of production planning — are faster and closer to the market picture with scientifically designed forms that organize and expedite paperwork. Determining material and manpower requirements follows the forecast.

Next a Parts Requirement Record, run off from punched cards and using an IBM 650 computer, schedules quantities of components and completion dates. Parts arrive on staggered schedule for uninterrupted work flow. The Record is a 4-part Moore continuous form, the fast-moving Speediflo. It is the company's control in print.

This kind of automated control keeps inventories to a

minimum and reduces warehouse footage. It has released capital for other uses and reduced seasonal loan requirements. Overproduction is less likely since forecasts are up-to-date. Slowdowns caused by late or missing parts are minimized. Earlier deliveries can be promised — and met.

The Moore man helped in scientific design of procedures and forms tailored to this Automated Data Processing (ADP) system. For more examples of form-system improvement, write on your letterhead to the Moore office nearest you.

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See your local dealer. Or write us on your company letterhead for free samples.

**GENERAL** pencil company

Jersey City 6, New Jersey

For More Information Write No. 239 on Inquiry Card—Page 32

132

## Office Equipment



Scheduling problems can be solved with Rol-a-chart, a new visual control board. Entries are made directly on the rotating, transparent, plastic sleeve with a marking pencil and erased with a wipe of a cloth. The continuous sleeve is moved across a fixed grid, so designed that time intervals from minutes to months can be set up. The board provides eight square feet of scheduling space, yet occupies only four feet of wall space. More information can be obtained from: Conley, Baltzer & Steward, 494 Jefferson St., San Francisco 9.

Write No. 36 on Inquiry Card—Page 32



A portable typewriter combining all the convenience features of a standard office typewriter was introduced recently by Royal McBee Corporation, Hartford, Conn. Newly introduced with the portable is the "Magic Column Set" which provides the same method of complete automatic tabulation from the keyboard as does the standard office typewriter. A new method of packing typewriters for shipment was inaugurated also. Two polystyrene safety cushions, resembling oversized earmuffs, hold the machine in place. Notches and grooves in the safety cushions hold important movable controls of the typewriter in semi-suspension, so that

any shocks incurred in shipping are absorbed instead of being transferred to rigid surfaces.

Write No. 37 on Inquiry Card—Page 32

A new concept in waste baskets is now available from Globe-Wernicke Co., of Cincinnati, Ohio. Molded of glass fiber reinforced polyester by Armored Plastics Co., Toledo, the receptacle features clean flowing lines with no joints to gather dirt. A vinyl trim strip surrounding the top rolled edge of the basket prevents smudges on walls, scuff marks on office furniture and snags which might damage hosiery.

Write No. 38 on Inquiry Card—Page 32



The new series of office chairs just reduced by Cramer Posture Chair Company of Kansas City, Kansas is available in five models. The steel tubular frame forms a stylized "K" from which the series gets its name. Seat and back cushions on all five models are made of molded foam latex. The removable chair covers can be purchased in a wide selection of colors and fabrics.

Write No. 39 on Inquiry Card—Page 32



PURCHASING



## How we measure light to make better whiteprints for you!

We call it a Sensitometer. It's job—measuring Ozalid whiteprint papers to make certain every sheet you purchase prints at rated speed.

It was designed and built by Ozalid for use in our sensitometry lab at Johnson City, N. Y.—and its work is just one step in our quality control program.

Altogether, we put your paper through 12 separate tests, before and after coating. In one lab alone, six machines are constantly at work—tearing paper, folding it, measuring its properties.

Through every step of manufacture, *Ozalid controls quality as no other manufacturer can.* As a result, Ozalid papers give you finer prints—without costly spoilage.

For all the facts—and prices—on these papers call your local Ozalid representative. His number's in the phone book, or write: Ozalid, Dept. EE-11-24, Johnson City, N.Y.

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For More Information Write No. 240 on Inquiry Card—Page 32

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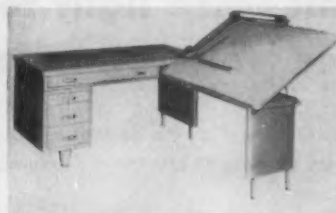
For More Information Write No. 241  
on Inquiry Card—Page 32

## Office Equipment



The Wright Line, Inc. of Worcester, Mass. has introduced a new line of rotary files. The new file line includes more than 30 different models for varying capacities and will handle all card sizes. A wide plastic posting shelf provides a working area with centrally located controls. Foot controls are also available with a selector switch control at the operators right. Another distinctive feature is the cut-back lower front panel to give operator adequate knee space and comfort.

Write No. 40 on Inquiry Card—Page 32



An all-steel, L-shaped unit with a total of over 27 sq. ft. of surface, divided between desk and board, now provides separate, yet easily accessible work areas in a minimum of space. For designers and engineers, the new desk and drawing board combination is a product of Columbia-Hallowell division of Standard Pressed Steel Co., Jenkintown, Pa. Since the drawing board drops to a completely horizontal position, the full work surface is available as table top for conference use.

Write No. 41 on Inquiry Card—Page 32

A new three-color folder entitled, "The New Concept in Modern Data-Processing" has been released by Remington Rand Division of Sperry Rand Corporation.

The folder contains a description in non-technical terms of the instantaneous random access feature as it applies to typical business applications. Copies of the folder (U1483) are available without charge.

Write No. 42 on Inquiry Card—Page 32



American Automatic Typewriter Company, 2323 N. Pulaski Rd., Chicago, has recently published a 68-page booklet containing "60 Best Business Letters." The letters are carefully selected examples of tested business letters which have proved to be effective. Free copies available.

Write No. 43 on Inquiry Card—Page 32

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PURCHASING

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INDUSTRIAL TOOLS AND EQUIPMENT  
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**Tax Statement - Year 1**  
CENTRAL CALIFORNIA IRRIGATION  
LOS ANGELES, CALIFORNIA

**Assessment Due**  
November 30, 1954  
First Installment Due  
December 31, 1954  
Second Installment Due  
June 30, 1957  
(For the calendar year 1957)

# BUSINESS FORMS WITHOUT CARBONS

**NCR PAPER DOES IT!...produces cleaner, clearer copies**

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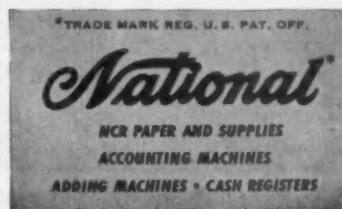
Non-smearing NCR Paper, perfected by the research laboratories of The National Cash Register Company, eliminates smudging of copies or fingers and

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## Association News



Gordon Burt Affleck, president of the N.A.P.A., addressing the Ninth District Conference at Providence, R.I.

### P.A.'s Inspired at Ninth District Conference

**A**N ATMOSPHERE of inspiration pervaded the proceedings of the 13th New England Purchasing Conference held at the Sheraton-Biltmore Hotel in Providence, R. I.



Paul V. Farrell, editor, *Purchasing*, was a feature speaker.

Sponsored by District Nine of the National Association of Purchasing Agents, the conference proved to be a huge success both in turnout and in response of those attending.

Several outstanding speakers were on the program. Albert L. MacLean, purchasing agent, Stanley Home Products, Inc., and vice president of District Nine, gave the opening address on the "Affairs of District Nine, N. A. P. A."

Following, was a panel discussion on value analysis and standardization. Moderator for the forum was Mather Harding, assistant purchasing manager, American Bosch Arma, Springfield, Mass. Several competent panel members assisted Mr. Harding.

A very unusual talk on the "Business Climate" was given by Clayton P. Fisher, Jr. consultant, business climate development,

General Electric Company.

"The Purchasing Agent As A Business Forecaster" was presented by Paul V. Farrell, editor, and Dean S. Ammer, executive editor, *PURCHASING Magazine*.

Among the fine speakers at the afternoon session were: William E. Hogan, "Legal Aspects of Purchasing"; G. W. H. Ahl, "To All From Ahl"; Herbert Layport, "Your Responsibility to Your Company"; H. Stafford Kellam, "Your Responsibility to Yourself"; Daniel Donovan, "Your Responsibility to Your Profession."

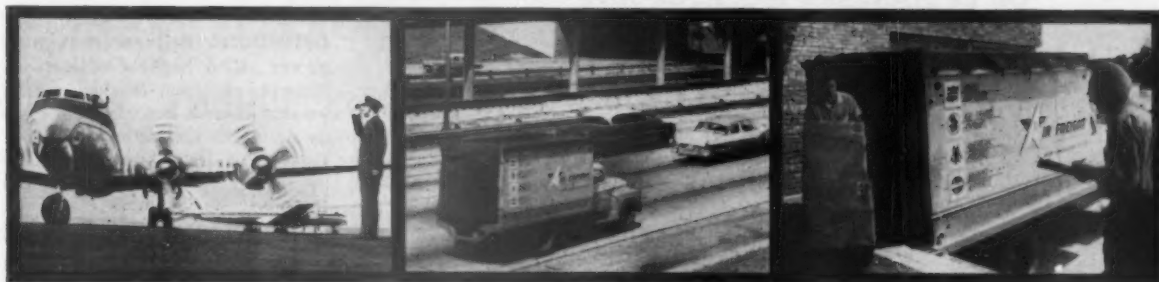
Toastmaster Albert L. MacLean, purchasing agent, Stanley Home Products, Inc., and vice president N. A. P. A. District Nine, introduced the featured speaker of the conference, Gordon Burt Affleck, president, N. A. P. A. who gave a truly wonderful talk on the finer things in purchasing.



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***is door to door, relieves you of***



***pickup and delivery problems***

As convenient (and fast) as dropping an air mail letter in the box. Turn your shipment over to United at your door and forget about it. It will arrive at your customer's door on time and appreciated.

United's pickup and delivery service is an extension of your shipping department. Takes the strain off traffic managers, keeps inventory low, frees warehouse space.

This service, plus United's radar dependability, 2000-community reach and Reserved Air Freight make a solid case for calling United when you stamp cargo "Ship Best Way."



For service, information or free Air Freight booklet, call the nearest United Air Lines representative or write Cargo Sales Division, United Air Lines, 36 South Wabash Avenue, Chicago 3, Ill.

**GET EXTRA DEPENDABILITY, EXTRA CARE—SHIP UNITED, THE RADAR LINE**

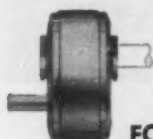
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permits motor change in minutes  
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### IT'S THE NEW OPTIMOUNT

Ratiomotor for shaft mounting. It's the compact power package you have needed to save space without sacrifice of top transmission efficiency. Single or double reduction helical geared units deliver 87.4 to 431 output RPM. Get details—find out how OPTIMOUNT can solve your drive design problems.



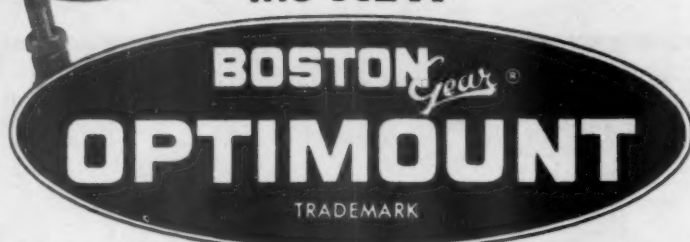
FOR SHAFT-MOUNTING . . .

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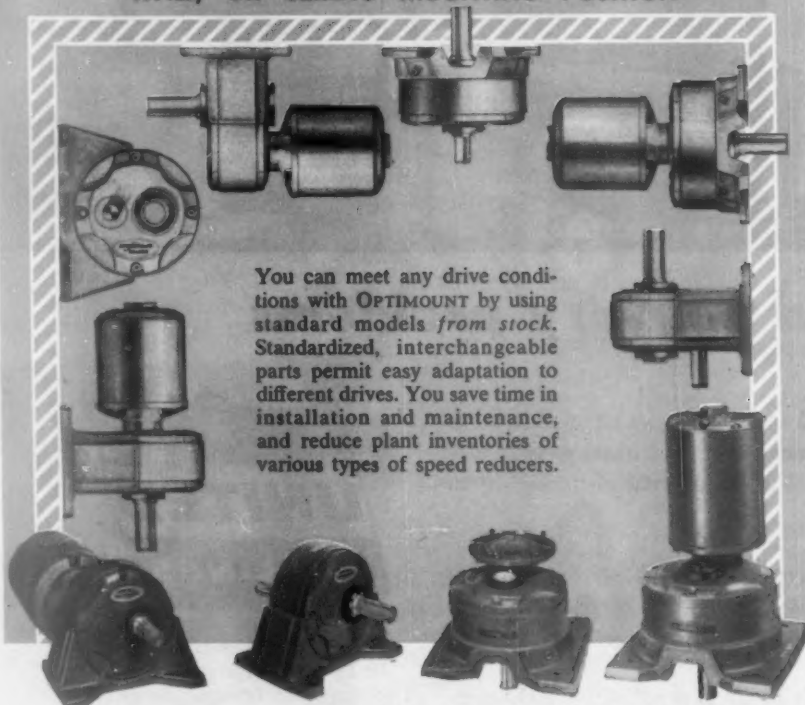
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You can meet any drive conditions with OPTIMOUNT by using standard models from stock. Standardized, interchangeable parts permit easy adaptation to different drives. You save time in installation and maintenance, and reduce plant inventories of various types of speed reducers.

OPTIMOUNT delivers maximum power, with highest efficiency, through precision-finished helical gearing made to BOSTON Gear quality standards. Get details from your Distributor. He will demonstrate the many features that assure OPTIMUM PERFORMANCE. Boston Gear Works, 74 Hayward St., Quincy 71, Mass.

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FROM STOCK**

**680 OPTIONAL  
MOUNTING  
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**1/6 to 15 H.P. DRIVES**



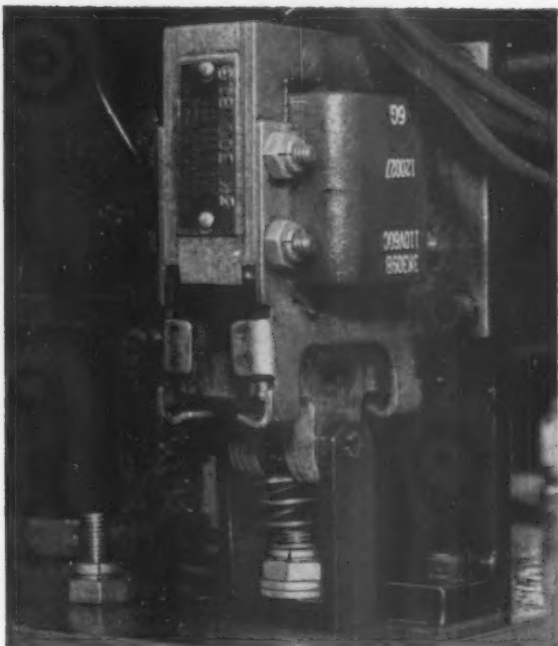
CALL **BOSTON** Gear  
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Remember — **STANDARDIZATION PAYS** —

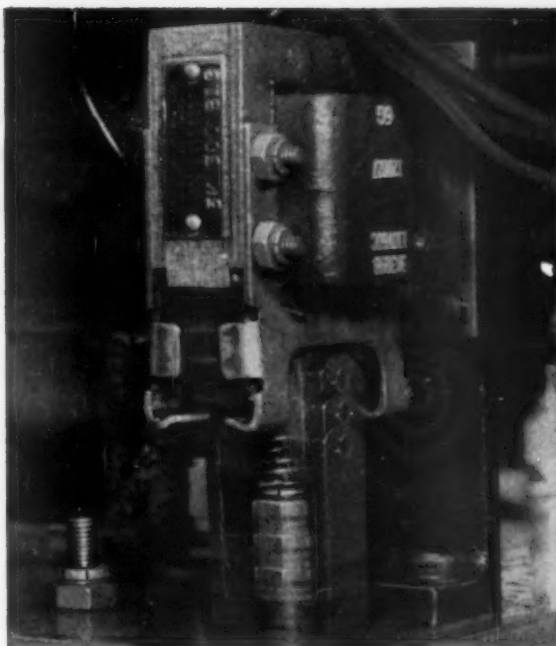
**NEW  
CATALOG OP-1**  
lists complete  
OPTIMOUNT data—  
selection charts,  
application infor-  
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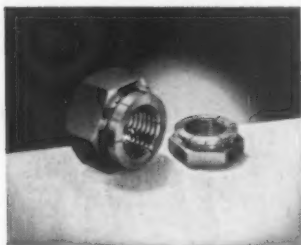


Both regular and thin height FLEXLOC nuts are used to fasten this solenoid valve assembly on a 15,000-lb.-capacity fatigue testing machine. Valve monitors the oil supply to a control cylinder which maintains a constant load on the test specimen.



Stroboscopic photo shows action of solenoid in opening oil supply valve. Unit is capable of speeds up to 60 cycles/sec., chatters hard whenever a test specimen breaks. Despite impact and vibration, the FLEXLOC nuts never require retightening.

## FLEXLOC self-locking nuts help you reduce costs of vibration-proof fastening



Because they require no separate locking devices, FLEXLOC self-locking nuts facilitate design and specification, simplify inventory and handling, reduce assembly time and costs. They also

save on maintenance, because they are readily removed and can be reused many times with no effect on the reliability of their locking action.

Repeated shock, pounding of heavy machinery, high-speed oscillation—nothing will loosen a FLEXLOC self-locking nut. FLEXLOCs help give your assemblies the increased reliability demanded by today's higher operating temperatures, faster speeds, and greater dynamic stresses.

FLEXLOCs are available in either regular height or thin height configurations, the latter being designed for applications where space and weight savings are vital. Both are 1-piece, self-locking units requiring no auxiliary locking elements—no lockwashers, jam nuts or cotter pins. There is nothing extra to put together, come

apart or get lost . . . and no nonmetallic inserts to waste head space or weaken the structure of the nut. With a FLEXLOC, every thread, including those in the locking section, carries its full share of the tensile load.

Your authorized SPS distributor carries FLEXLOC self-locking nuts—regular and thin height—in all standard sizes, materials and finishes. Flexloc Locknut Division, STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

### HIGH RELIABILITY

SPS research is continually developing fasteners with higher standards of predictable performance. By installing SPS high-reliability fasteners in your assemblies, you increase overall product reliability.

For more information on the full meaning of reliability, write for a copy of the new SPS booklet "High Reliability."

We also manufacture precision titanium fasteners / write for free booklet

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Standard Pressed Steel Co. • The Cleveland Cap Screw Co. •  
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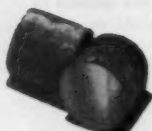
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## TECHNITE® POWER HACK SAW BLADES

stay hard,  
sharp and  
accurate



cut



after  
cut



after  
cut



See Your Capewell Distributor



THE CAPEWELL MFG. CO.  
HARTFORD 2, CONN.

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## Association News

### Metropolitan Club Begins Course

The opening session of a course on "The Administration of the Purchasing Function" was presented at a recent dinner meeting of the Metropolitan Purchasers Club.

Jack Parks, director of purchases and traffic at Metal and Thermit Corp., was the instructor for the meeting, held at the Chateau Restaurant in New York City. He discussed the basic functions and internal organization of the purchasing department, outlining various phases of purchasing administration.

President R. F. Baldwin, M. W. Kellogg Co., chaired the meeting and vice president Walter Sobolka, International Nickel Co., introduced the speaker. John J. Gianfalla, Morrison-Knudsen Co., gave the report of the membership committee.

### Atomic Power Talk at Pittsburgh Ass'n

O. C. Kebernick, assistant marketing manager, Westinghouse Electric Corporation, Atomic Power Division attempted to indicate how electric utilities and reactor manufacturers can work together in solving many of the outstanding problems relating to the development of economic nuclear power at a recent meeting of the Purchasing Agents Association of Pittsburgh. He touched on such things as research and development, application and cost reduction as being areas of endeavor uniquely the reactor manufacturer's. The utilities' role in the cooperative approach to atomic power was described as reinforcement and building of knowledge concerning atomic power as well as programming of work in reactors they have sponsored to permit training of people and post construction research and development. The presentation closed with a brief review of responsibilities which are shared.

They're now available  
from stock in new  
standard 18" lengths!



## LONGBOY DRILLS

Been buying costly "specials" for deep hole drilling operations? Then you'll be glad to know that Ace Longboy Drills are now available from stock in a wide range of standard sizes and in both 12" and 18" lengths! What's more, their polished flutes are precision ground in top quality pre-hardened high speed steel to provide a finer finish, keener cutting edges, and longer drill life.

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NEW CATALOG covers the entire line of Ace "Ground-from-the-Solid" High Speed Steel and Carbide Drills, Reamers, Drill Blanks and Special Drills. Send for it today!



## ACE DRILL

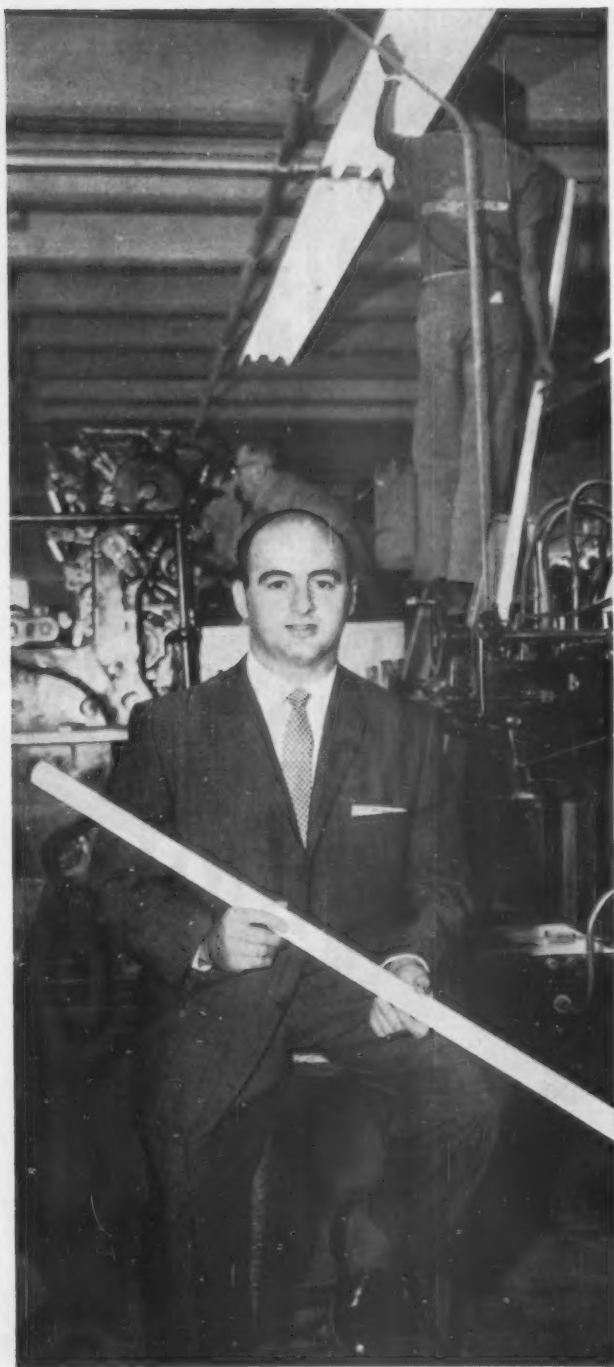
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ORIGINATORS OF "GROUND-FROM-THE-SOLID" DRILLS

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PURCHASING

# "We keep lighting maintenance costs down by using quality products..."



*that's why  
we use  
General Electric  
lamps"*

"We're lighting maintenance contractors whose services include replacing burned out tubes, ballasts, starters — and the periodical cleaning of fixtures," says Herbert Mendelsohn of Sun Ray Lighting Company, Kansas City, Mo., "and we must keep our customers' lighting at peak operating efficiency quickly and economically.

"So, in effect, we sell footcandles at the lowest possible price. Naturally, we use the lamps that give more light for the current used, and are the most reliable. A defective tube causes an extra service call—as does an early burnout. So we use General Electric Lamps that last longer and have virtually no defects. This way our customers get better lighting—and we hold our costs down while improving our profit picture."

Whether you now buy your own lamps—or use a contract service such as Mr. Mendelsohn's, you can get more value for every dollar you spend on lighting by specifying General Electric Lamps. Call your nearby G-E Lamp Specialist and see for yourself. Or write: General Electric Co., Large Lamp Dept. C-840, Nela Park, Cleveland 12, Ohio.



*Progress Is Our Most Important Product*

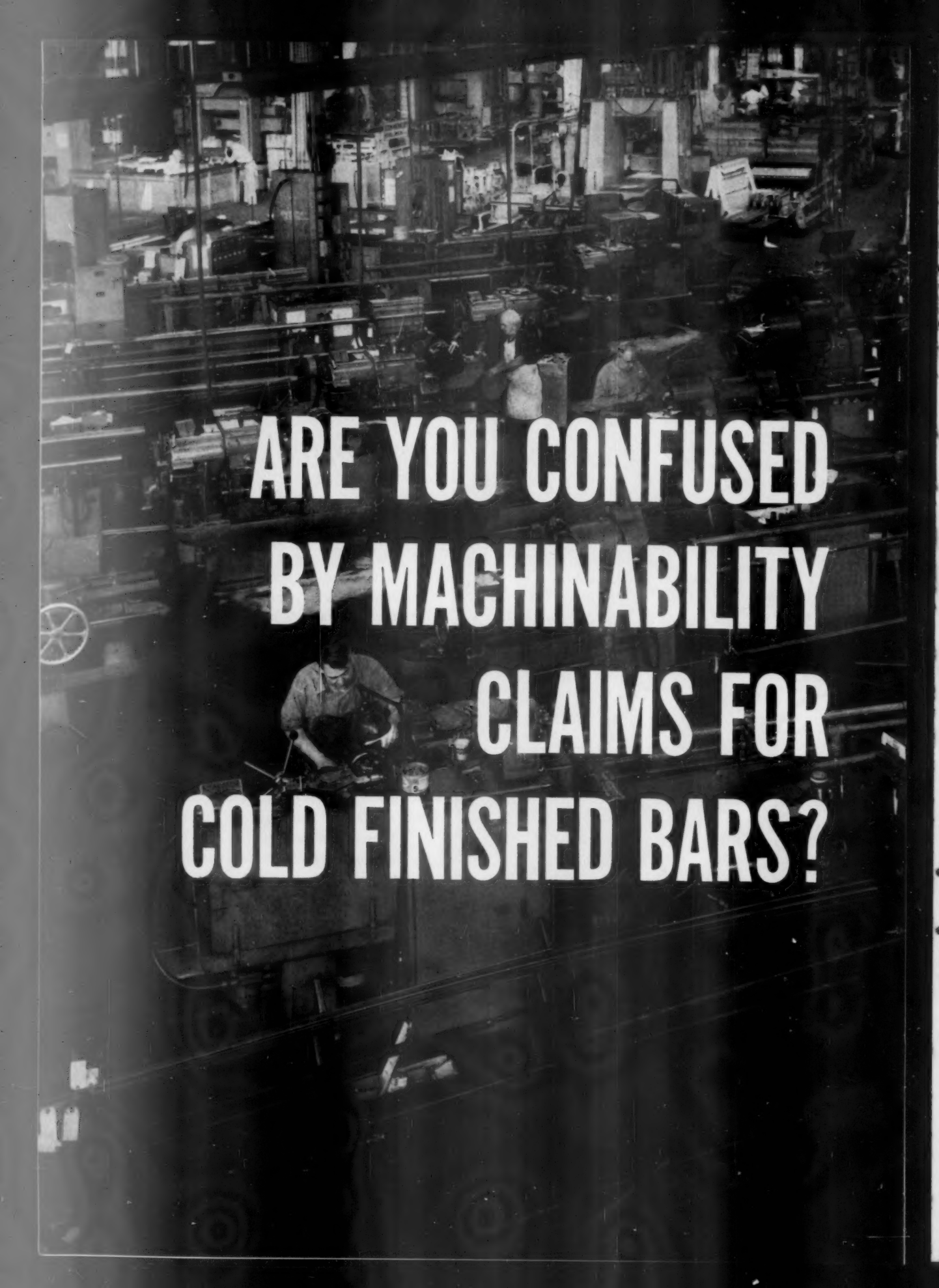
**GENERAL  ELECTRIC**

**G-E LAMPS GIVE YOU MORE VALUE FOR ALL YOUR LIGHTING COSTS**

For More Information Write No. 249 on Inquiry Card—Page 32  
NOVEMBER 24, 1958

For More Information Write No. 250 on Inquiry Card—Page 32→

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**ARE YOU CONFUSED  
BY MACHINABILITY  
CLAIMS FOR  
COLD FINISHED BARS?**

## What Are the Facts About Machinability?

Conflicting claims unfortunately are sometimes made for the machinability of certain cold finished steel bars. The result is that knowing minds tend to be skeptical about all specific machinability claims.

### MACHINABILITY A RELATIVE TERM

And rightly so, for "machinability" is a relative term. Machinability is defined at Bliss & Laughlin as the machining characteristic of the steel which most economically fits your product and production. Four considerations determine the degree of free machining which should be sought: (1) The cost of the finished part, (2) the rate of production possible, (3) the finish required and (4) the tool life wanted.

### WHICH STEEL IS MOST MACHINABLE?

It is clear that no one of the so-called "highly machinable" steels can always be recommended for all production. Instances have been noted, for example, where plain carbon steels are better machinability buys than leaded steels, which are recognized as being the freest machining of all steels. When asked which steel should be purchased for its machinability characteristics, we must say "that depends on your product and your equipment."

### CONSERVATIVE MACHINABILITY CLAIMS

During the nearly 70 years which Bliss & Laughlin has served American industry, the company has been notoriously conservative about machinability claims. As America's largest specialized producer of cold finished steel bars, Bliss & Laughlin recommends the steel which provides the best machinability at the best price for the part to be produced on your equipment. Available for your production needs is a complete range in all grades of carbon and high carbon steels, regular and leaded, alloys and heat-treated steels. Bliss & Laughlin is prepared at all times to meet your specifications without equivocation.

### MACHINABILITY EXPERTS AVAILABLE

Because Bliss & Laughlin has no favorite analysis to promote, offering all analyses, its machinability advisory service can be particularly valuable during both planning and actual production. Bliss & Laughlin's machinability engineers are available to trouble-shoot existing machinability problems in your plant or to provide metallurgical and technical assistance in helping you select the most economical grade of steel before jobs are started.

There will be no confusion about machinability claims if you place your problem in the hands of a Bliss & Laughlin representative. If he doesn't have a ready answer, a Bliss & Laughlin machinability engineer will. Check the telephone classified pages for the nearest representative or write or telephone the nearest plant below.



A. D. Kondrath (left), a B&L Machinability Engineer, is one of the country's authorities on the machinability of cold finished steel bars. Typical of his work with customers is pre-production selection of the most machinable bar stock for the job, considering the finish desired, the rate of production possible, and the tool life.



A practical recommendation is always assured because Bliss & Laughlin backs its recommendations with actual tests on its own machine tool in B&L's Customer Service Laboratory. Here Mr. Kondrath is discussing the machinability of the steel recommended as being the most suitable for a customer's product and production.



After a customer receives the B&L steel recommended as being most machinable for the part on the machine tool which will be used, there is continuous assurance that production will run smoothly and that the finished part will meet specifications—very important reasons why B&L machinability recommendations are worth seeking.

Specialists in Finish, Accuracy, Straightness, Strength and Machinability

# BLISS & LAUGHLIN

GENERAL OFFICES: Harvey, Ill. • PLANTS: Harvey, Detroit, Buffalo, Mansfield, Mass.

Largest Independent  
Producer of Cold  
Finished Steel Bars

## Association News

### Purchasing's Challenge Discussed At Eighth District Conference



Four well-known purchasing figures at one of the luncheon meetings—"Tony" Ruediger, Ralph Baker, N. A. P. A. President Gordon Burt Affleck, and Eighth District Vice President "Duke" Chesney.

One of the highlights of the Conference was a stimulating discussion of "The Purchasing Profession" by top-flight P. A.'s like "Tony" Ruediger and Dave Gibson and top management people. Chairman and referee was Walter Willets (at microphone).



PURCHASING's Executive Editor Dean Ammer discussed how the P. A. can make economic forecasts. Previously Editor Paul Farrell had described the great opportunity for the purchasing executive to assist management by taking advantage of his unique knowledge of markets and economic developments.

ONE VETERAN N. A. P. A. member who attended this year's N. A. P. A. Eighth District Purchasing Conference in Elmira, N. Y. called it the "best ever." Another said that it had given him "ideas to carry back to top management."

The theme of the Conference was "Purchasing's Challenge" and the program was carefully arranged by General Chairman Ralph Baker and Program Chairman Vic Pooler to carry out the theme. The program was kicked off with a discussion of management's role in purchasing's challenge. Speakers were H. Thomas Hallowell, president of Standard Pressed Steel Co. and Tomlinson

Fort, vice-president of Westinghouse Electric Co.

In an inspiring address, N. A. P. A. President Gordon Burt Affleck got P. A.'s thinking about what they could do to help management meet the purchasing challenge. Then N. A. P. A. Executive Secretary-Treasurer Howard Ahl gave delegates some specific pointers on how to meet the challenge through self-education, association work, etc.

Mr. Ahl was then followed by a whole galaxy of seasoned purchasing speakers who discussed specific techniques for meeting the challenge. Discussing "The Purchasing Profession" were Walter Willets, Joseph Meade,

Dave Gibson, Ed Noble, and Worth Probst. Suggesting "The P. A. as Company Economist" were Paul Farrell and Dean Ammer. Giving tips on "Purchasing Performance" were "Tony" Ruediger, Ed Krech, and H. L. Consley.

The conference continued on this theme with a talk "Good P. A.'s Don't Grow on Trees" by Clifford Lloyd, past president of the Canadian Association of Purchasing Agents. And, last—but by no means least—on the program was a stimulating and educational "Dr. Stan Dard's Clinic" presented by the Eighth District's Value Analysis and Standardization Committee.

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**PURCHASING**

*Always Stronger*  
**Than**  
**They Need Be!**

# MIDWEST

**WELDING FITTINGS**

Below are photographs of two of the many tests that have been made of Midwest Welding Fittings. The results are *always* the same . . . the seamless pipe to which the fittings are welded invariably bursts. There is never any sign of fitting failure or weakness.

There's good reason for this. We make elbows and tees of inherently stronger metal . . . the Midwest exclusive method of manufacture enables us to maintain greater minimum wall thickness, and to reinforce the fittings at points of greatest stress. For the many other advantages of Midwest Fittings, ask your Midwest distributor or write us for Catalog 54.

## MIDWEST PIPING COMPANY, INC.

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PLANTS: ST. LOUIS, CLIFTON, N. J. and LOS ANGELES

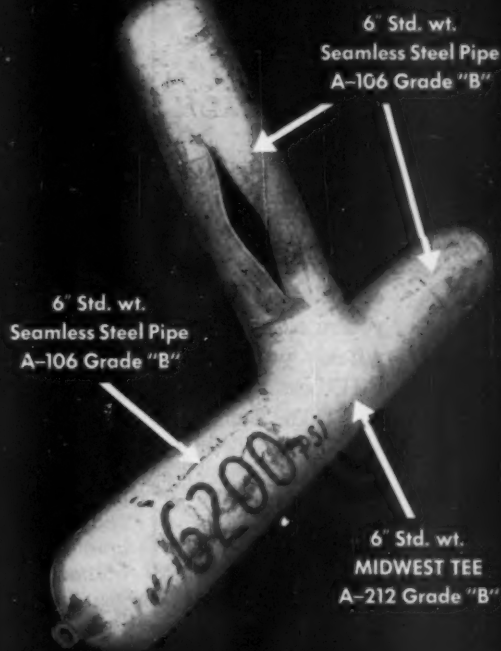
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Typical bursting test of stock Midwest Welding Elbow. As is always the case, failure occurred in the seamless pipe while the elbow was undamaged. Bursting pressure was 6000 psi . . . considerably above the required code minimum for seamless pipe. (Minimum allowable bursting pressure for 6" standard weight A-106 Grade B seamless steel pipe is 4438 psi.)

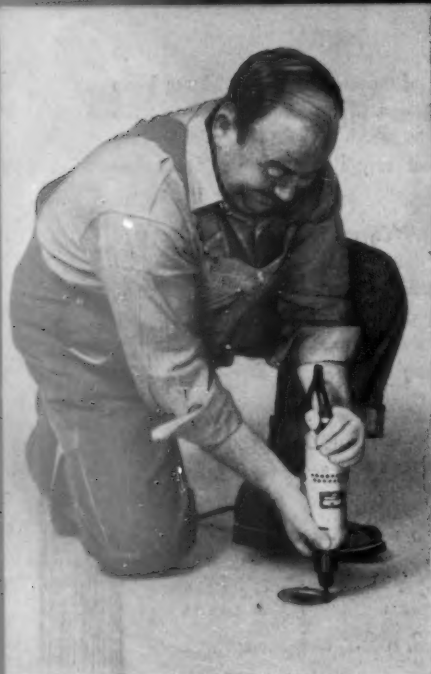


Bursting test of Midwest Welding Tee taken at random from stock. As always, the failure occurred in the seamless pipe and not in the fitting. The non-shock internal bursting pressure of 6200 psi is well above the code minimum for seamless pipe. (Minimum allowable bursting pressure for 6" standard weight A-106 Grade B seamless steel pipe is 4438 psi.)

7761

# MIDWEST

**WELDING FITTINGS IMPROVE PIPING DESIGN AND REDUCE COSTS**



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Every job goes faster when you use the *right* tool . . . and the accessories built for that tool.



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BITS

With over 2,000 accessories in the line, you're *always* right when you buy B&D because Black & Decker has the *right one* for every application.

So remember . . . whether your need is hammer tools, screw-driver bits, wire wheel brushes, grinding wheels, polishing pads or any other accessory for a Black & Decker tool . . . call your local Black & Decker Distributor. He stocks 'em all.

INSIST ON THE BEST

# Black & Decker

ACCESSORIES DESIGNED FOR THE TOOL

## Association News

### Sir Leslie Munroe Addresses Milwaukee P.A.'s



Sir Leslie Munroe, the principal speaker, is shown here, second from right, with, from left to right: James E. Moriarty, president of the association and with Sivyer Steel Casting Co.; Robert Whyte Mason, British Consul General; and Milt Kassner, president of the Sales Executives Club and sales manager of the Wisconsin Telephone Co.

Sir Leslie Munroe, the distinguished statesman from the United Kingdom who recently retired as New Zealand's Ambassador to Washington and as the United Nations President, addressed a recent meeting of the Milwaukee Association of Purchasing Agents and the Sales Executives Club of Milwaukee. Sir Leslie Munroe was introduced to the group by Robert Whyte Mason, the British Consul General of Chicago.

Sir Leslie Munroe stated that "while the United Nations is principally a forum for debate and a place where world public opinion can make itself felt, its influence on the history of recent years has been a vital one. Also, the United Nations is an instrument that can be used for the preservation of peace and has been—especially with countries that respect world opinion as in the Suez situation."

He felt that the U.N.'s role in the present dispute over the Chinese off shore islands should be one of watchful waiting. "The middle east problem is difficult because it is not in a place where the great powers can work out the final solution. That must be done by the states in the area

themselves. Meanwhile," Sir Leslie pointed out, "the U.N. emergency force and teams of observers are helping prevent tension in the area from boiling over into armed conflict."

### An Outstanding Kalamazoo Valley Ass'n Meeting

The Kalamazoo Valley Association of Purchasing Agents met recently at the Hotel Harris. Clifford J. Gallaher presided.

All major committees reported on their current plans and activities. The value analysis-standardization committee, headed by Robert A. Johnson of Panelyte division, demonstrated with short talks by John Stroud, Lee Paper Company and Frank Wotalewioz, KVP Company, two methods of evaluating the worth to the company of their inventory.

The business survey committee reported the results of the survey just completed for the Kalamazoo Area. This report confirms that business is gaining strength in all phases in this area with employment, production, and order backlog higher than three months ago. At the same time, purchasing agents report that they are paying higher prices for the things they buy, are having to wait slightly longer for delivery, and have not shown a net gain in inventories since production demand has risen faster than materials in inventory could be replaced.

The main speaker of the evening was Dr. Andrew Luff, Western Michigan University, speaking on "Some Aspects of Quality Control." Dr. Luff demonstrated with a chalk talk a normal variance curve and presented the basic tools for establishing a statistical quality control system. He went on further to explain how quality control cuts manufacturing costs, and told how some companies have lowered costs and improved vendor performance through a vendor certification system.

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## Black & Decker Tools for maintenance ... electric power at its saving best!



**No. 65 VACUUM CLEANER:** handles wet or dry material. Big 1 1/4 hp motor for plenty of suction. Super-flexible hose stretches to a full 15 ft.



**6" H.D. BENCH GRINDER:** Ruggedly built for H.D. grinding, sharpening, wire brushing or buffing. Full 1/2 hp constant speed motor keeps jobs moving.



**No. 10 SCRUGUN®:** Driving screws goes faster; handles up to No. 12 screws. Positive or adjustable clutch; center drive, end handle or pistol grip.



**1 1/2" HAMMER:** 2200 punching blows a minute makes drilling, chipping, breaking or vibrating go faster, easier. Saves maintenance costs!

Specify the POWER-Built line:  
71% of buyers say B&D!

Whether it's a grinder or a cleaner; a drill or a power hammer—over 7 out of 10 industrial purchasers prefer Black & Decker! Experience has told them Black & Decker means *quality*; quality they can depend on to give them years of trouble-free service.

If you have an electric tool need—one illustrated here or any other—do as most people do: think *first* of Black & Decker. That's the name that means a tool to *do the job* and do it for years and years to come. Mail coupon for a free demonstration of the tool you need. **THE BLACK & DECKER MFG. CO., Dept. 1711, Towson 4, Md.** (In Canada: P.O. Box 278, Brockville, Ontario.)



Leading Distributors Everywhere Sell

**Black & Decker®**  
Quality Electric Tools . . . Power-Built for top performance

MAIL FOR FREE DEMONSTRATION

**THE BLACK & DECKER MFG. CO., Dept. 1711, Towson 4, Md.**

Please arrange a demonstration of your ☐ No. 65 Vacuum Cleaner; ☐ 6" Bench Grinder; ☐ No. 10 Scrugun; ☐ 1 1/2" Hammer.

☐ Send me additional information.

Name.....Title.....

Company.....

Address.....

City.....Zone.....State.....

## Association News

**T**he Pacific Intermountain Purchasing Agents Conference, sponsored by the Arizona, Los Angeles, Northern California and Utah associations, drew approximately 200 purchasing agents to Salt Lake City. The conference, the twelfth for this group, was held at the Hotel Utah. J. Merrill Bushnell, conference chairman, opened the program.

Among those who addressed the conference were John R. Hairgrove, vice president District One, N.A.P.A. and purchasing agent for the Braun Chemical Company, who spoke on "N.A.P.A.—A Management Team"; Howard Ahl, executive secretary-treasurer, N.A.P.A., giving his always popular "To All From Ahl"; Obert C. Tanner, president, Tanner Industrial Jewelry Co., discussing "America's Role in Philosophical and Industrial Development"; John A. Hill, president, Air Reduction Company, speaking on "The Purchasing Revolution."

**PURCHASING WORKSHOP** sponsored by Purchasing Agents of Chicago and Illinois Institute of Technology drew 80 registrants to IIT's campus recently.

Group at right is listening to opening talk by Dr. Bruce McSparrin of Indiana University. Prominent on the program were (below, left to right) Sy Ellison, president of the Chicago Association; Dick Berry, chairman for the association; and Kenneth A. Geist, director of purchases for Allis-Chalmers.

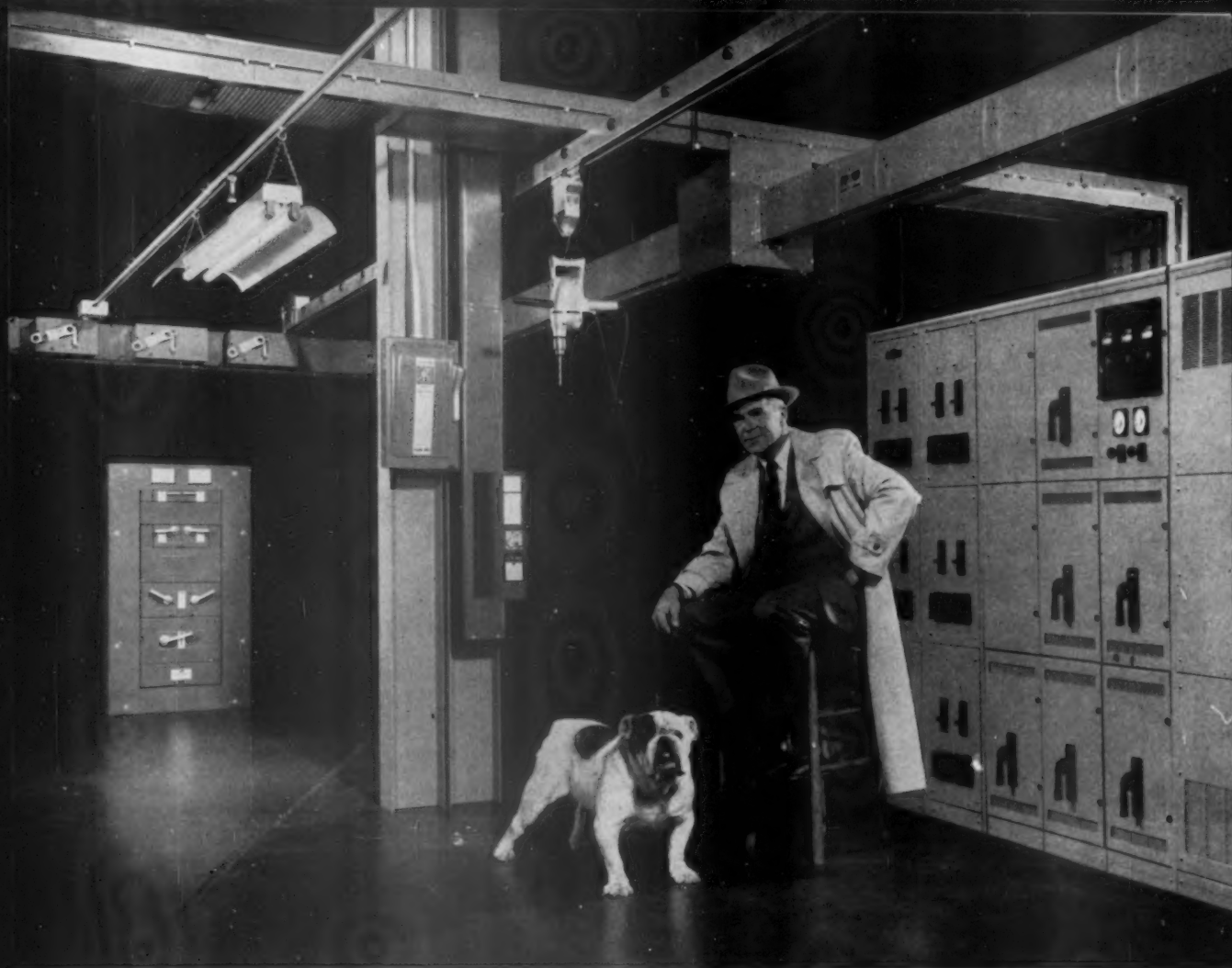


Shown here are members of the District One Council which met in conjunction with the Pacific Intermountain Conference. Front row, left to right: Charles F. Ketcham, national director, San Diego; Curtis E. Anderson, national director, Oregon; John R. Hairgrove, vice president, District One; Paul G. Marks, national director, Arizona; and Frank R. Pierce, national director, Hawaii. Rear row, left to right: Charles B. Bartlett, national director, Utah; S. H. Bellue, national director, Los Angeles; O. B. Sundberg, national director, Washington; Raymond W. Brick, council secretary, Los Angeles.

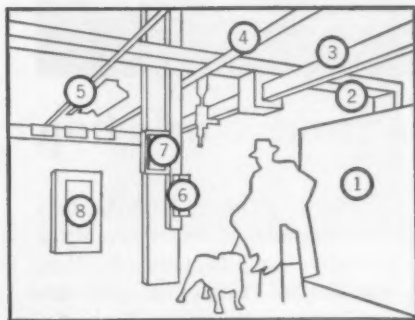
Saturday was devoted to a series of work shop sessions. Typical was the "Steel Warehouses and Users" session chaired by William Broker of Gough Industries, Los Angeles.

Panel members were: Robert Sweet, Structural Steel & Forge Co., Salt Lake City, and A. B. Marshall, Ducommun Metals and Supply Co., Berkeley, Calif.





## Electrical Planning—*key to efficiency and economy, too!*



**PLANNED POWER** on display—It's yours in a system of coordinated BullDog components. 1. Unit Substation and Unit-Versal® Switchboards. 2. Lo-X® Feeder Duct. 3. Plug-in Duct. 4. Industrial Trol-E-Duct®. 5. Universal Lighting Duct. 6. Pushmatic Electri-Centers®. 7. Clampmatic® Safety Switches. 8. Power Panels.

Score yourself on how well you're using electricity. Is control and distribution of power getting its deserved emphasis in your business? Do you enjoy the benefits of a distribution system tailored to the needs of your operations—whether commercial, institutional or industrial? Such a system, soundly planned by BullDog, can be a giant step toward greater efficiency, profitable use of personnel, and easy, economical growth.

Call on the talents of your BullDog field engineer—let him study your requirements and plan ahead for them. Make sure you are powered up to meet a challenging future. © BEPCO

# BULLDOG



BullDog Electric Products Company, Division of I-T-E Circuit Breaker Company, Detroit 32, Mich. BullDog Export Division: 13 East 40th St., New York 16, N.Y.  
In Canada: BullDog Electric Products Co. (Canada) Ltd., 80 Clayson Rd., Toronto 15, Ont.

HEAT BETTER ELECTRICALLY

For More Information Write No. 253 on Inquiry Card—Page 32

## Association News

**Value Analysis Standardization Committee.** Seated, left to right, Peter Heaney, New York Association; E. Philip Kron, eastern vice chairman, national committee; Freeman Hudson, 8th District chairman; J. E. Fitzgerald, 8th District vice chairman; Magne Amundsen, Eastern New York Association; Standing, left to right, Warren Smith, Rochester Association; Harry Shahnazarian, North Jersey Association; William Burk, Buffalo Association; Richard Shultz, Syracuse; Ray Lawson, 9th District Guest.



**Public Relations Committee.** Seated, left to right, John Hoover, Rochester; D. C. Robinson, chairman 8th District; Carl Ramberg, Elmira; Richard Keeler, Eastern New York; Harry McArdle, New York; Robert Preston, Syracuse. Standing, left to right, L. C. Mercier, North Jersey; Paul Ash, Buffalo.

**Workshop Leaders.** D. C. Robinson, public relations chairman; George Baker, education committee; J. D. Chesney, 8th District vice president; Freeman Hudson, value analysis-standardization chairman. Standing, left to right, Dwight Brooks, vice chairman, national committee of education.



## Eighth District N.A.P.A. Committees Hold Workshop

**T**HE EIGHTH District N.A.P.A. committees of education, value analysis-standardization, and public relations held a most successful joint workshop session at the Rocky Point Inn, Inlet, New York.

The workshop was under the guidance of District Chairman of Education George W. Baker, and Vice Chairman Walter Willets; District Chairman of Value Analysis-Standardization Freeman B. Hudson, and Vice Chairman J. E. Fitzgerald; and District Chairman

of Public Relations Donald C. Robinson. A group of 25 local committee chairman devoted several sessions of intensive work to the preparation of their programs. Eighth District Vice-President J. Dukehart Chesney presided at a joint meeting of all committees for a discussion outlining the cooperative efforts of the three groups.

Also participating in the workshop were Dwight Brooks, vice chairman, national committee on

education; E. Philip Kron, eastern vice chairman, national committee on value analysis-standardization, and Gailon Fordyce, second vice president of the New York Association. Guests included E. C. Drew, president of the host association, Syracuse and Central New York; F. Stan Romanse, president of the New York Association and Lyman H. Davis, president of the Buffalo Association.

**PHOENIX  
FLANGES**

**You  
can't buy  
a better  
flange...**

6" 150# A 181 G 1 PHOENIX

Forged Steel. Shot Blasted. All Phoenix flanges meet full A.S.A. specifications — carbon steel and alloy.

Spot faced bolting surfaces, extra fine facings, accurate threading and a protective coating are typical of Phoenix quality.

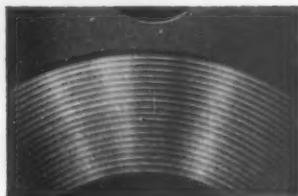
Precisely machined welding bevel.



Special facings, bores, drilling, threading and special machining available.



The long life and precision workmanship you have a right to expect in the flanges you buy are assured when you order Phoenix forged steel flanges. You simply can't buy a better flange! It costs no more for Phoenix quality and service. That's why it's always worthwhile discussing your pipe flange requirements with the Phoenix representative.



A serrated gasket surface finish is standard on all Phoenix flanges with raised facings.



Write for handy 36 page pocket-size reference booklet containing useful data on flanges. It's FREE!

*Leading Manufacturers of Pipe and Tank Flanges and Commercial Forgings*



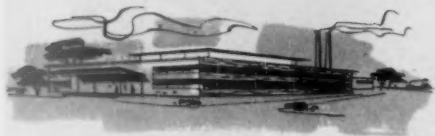
**FLANGE AND FORGING DIVISION**

**PHOENIX MANUFACTURING COMPANY**

DIVISION — UNION TANK CAR COMPANY

CATASAUQUA, PA. • JOLIET, ILL. • FOUNDED 1882

PHOENIX DIVISIONS: FLANGE AND FORGING DIVISION, STEEL MILL DIVISION, HORSESHOE PRODUCTS DIVISION, FABRICATING REBAR DIVISION



# No Two Plants are alike...

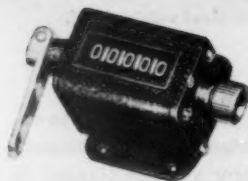


but all  
can count on  
**VEEDER-ROOT**

Sure, everybody's manufacturing problems are "different." But when these problems involve mechanical or electrical *Control*, they can *all* get the right answer from the same man . . . the Veeder-Root Distributor.



You will find that this man is tops in his field. He knows industry, and he knows how to adapt and apply standard Veeder-Root Counters to all types of production machines and processes, to give you exactly the facts-in-figures you need. If it's a question of quality, volume, cost inventory, production, wage or incentive payment, remember that *you're never sure unless you count*. And remember that the man you can always count on is your Veeder-Root Distributor. If you don't know who he is, just drop a line to D. G. Dresser, Veeder-Root Inc., Hartford 2, Conn.



**SMALL RESET COUNTER**

A compact, rugged reset counter for moderate duty in parts inspection, quality control, conveyors, machine tools, light presses, etc. Dimensions:  $1\frac{1}{4}$ " long,  $1\frac{1}{4}$ " high,  $1\frac{1}{16}$ " wide. Speed: Up to 1000 counts per minute.



**BOX-TYPE RESET COUNTER**

For punch press installations, conveyors, metal-working equipment, die casting, plastic-molding, rivet, spring and wire machining, or any installation requiring a heavy duty counter. Dimensions:  $4\frac{1}{4}$ " long,  $2\frac{1}{2}$ " high,  $3\frac{1}{4}$ " wide. Speed: 500 counts per minute.

**RESET MAGNETIC COUNTER**

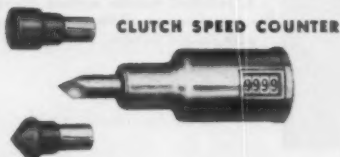


For remote indication of machine operation from plant to office. Dimensions:  $3\frac{1}{16}$ " long,  $2\frac{1}{2}$ " high,  $1\frac{1}{2}$ " wide. Speed: Up to 1000 counts per minute. Coils: 110V-AC are standard. Other voltages are available. Panel mounting feature also available.



**HAND TALLY**

For quick spot-checks of production or performance. Dimensions:  $1\frac{1}{4}$ " long (to end of reset knob),  $1\frac{1}{4}$ " deep, 2" high. Counts one for each depression of the thumb lever, and resets to zero by a turn of the knob.



**CLUTCH SPEED COUNTER**

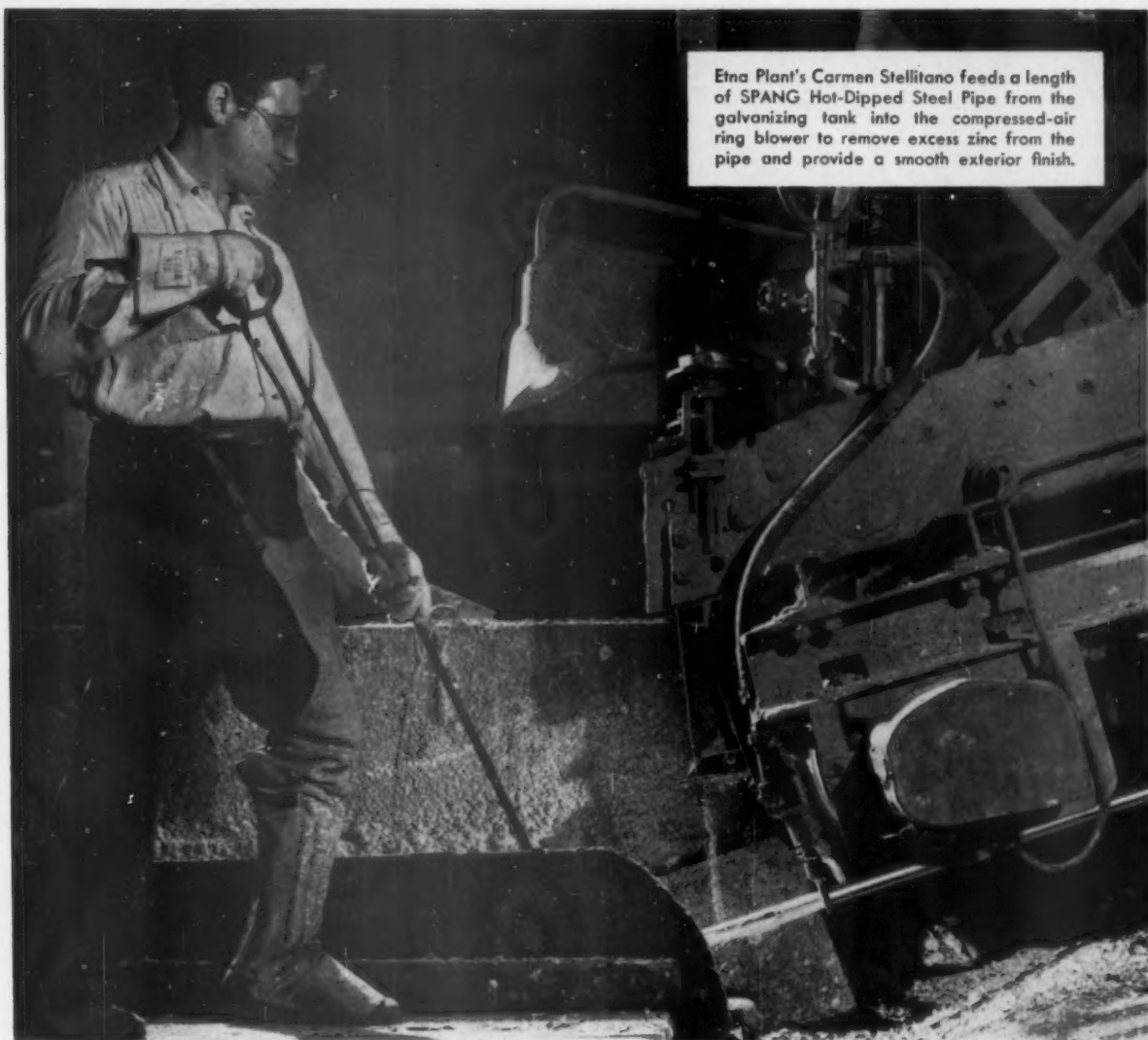
For checking to make sure that the machine is operating at the required R.P.M. Dimensions:  $3\frac{1}{4}$ " long,  $\frac{7}{8}$ " max. diameter. Non-Reset. Internal clutch operates counter only when rubber tip is pressed against the shaft.

Everyone can count on  
**VEEDER-ROOT**  
*"The Name that Counts"*



For More Information Write No. 255 on Inquiry Card—Page 32

Hartford, Conn. • Greenville, S. C.  
Chicago • New York • Los Angeles  
San Francisco • Montreal  
Offices and Agents in Principal Cities



Etna Plant's Carmen Stellitano feeds a length of SPANG Hot-Dipped Steel Pipe from the galvanizing tank into the compressed-air ring blower to remove excess zinc from the pipe and provide a smooth exterior finish.

## Out of this galvanizing tank comes the best steel pipe\* you can buy!

...\*Spang, of course!

### AND HERE'S WHY...

**UNIFORM STRENGTH**—SPANG Steel Pipe is produced under close control during forming and welding to provide a uniform pipe that's easy to cut, bend and thread . . . and it's hydrostatically tested well above normal operation pressures to be sure you get a strong pipe for rugged use.

**HEAVY-DUTY UNIFORM FINISH**—of prime western zinc, air-wiped outside to produce a smooth, even finish that will stand up under severe bending strains . . . blown inside with

superheated steam to provide a smooth finish for easy flow of liquids.

**HIGH CORROSION RESISTANCE**—Quick quenching of the hot galvanized pipe in a sodium dichromate solution gives a strong bonding of the finish to the steel . . . helps retard formation of white rust . . . adds extra service life to the pipe.

**SPANG-CHALFANT**  
DIVISION OF  
THE NATIONAL SUPPLY COMPANY

General Sales Offices: Two  
Gateway Center, Pittsburgh, Pa.

District Sales Offices: Atlanta, Boston, Detroit, Houston,  
Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis

**SPANG®**  
CW STEEL PIPE

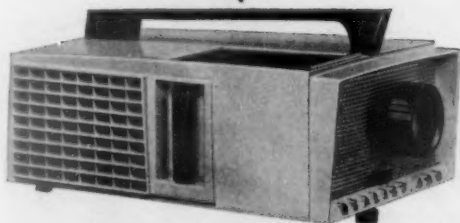
**NEXT JOB  
MAKE IT  
SPANG®  
STEEL PIPE!**

It's ideal for any piping installation, especially drainage and vent lines. You'll get quality every time. Save money in the long run, too! There's a SPANG Distributor near you, ready to give you quality service on your order.

this  
lens  
magnifies  
sales

There's a mass-market  
price tag on this new  
Realist 620 color slide projector.  
Easy to see why: Realist used  
a low-cost aspheric lens by  
Lancaster—for a brighter sales picture.  
Want lower unit costs for your  
product? Let Lancaster design the  
glass and plastic components.

design flexibility in glass



LANCASTER GLASS CORPORATION,

Lancaster 4, Ohio

For More Information Write No. 257 on Inquiry Card—Page 32

## Association News

### Little Rock Ass'n Discusses 7th District Conference

The Little Rock Association of Purchasing Agents held its regular meeting recently. After a 30-minute fellowship hour the meeting was called to order by President Ken Chambers.

A short report on the 7th District meeting at Jacksonville, Florida was given by Clifford Young, Hugh Gallagher and Hugh McMillan. All agreed the Jacksonville Conference was one of the best that they had attended.

The program was then turned over to Program Chairman Edd Tinnell, who introduced Dave Grundfest, president of Sterling Stores, Inc. He gave a very good inside description of how a department store should be operated, and how he requested all office buyers to treat salesmen who call on them in the office the same way, as if they were being entertained in their home.

The meeting was enjoyed by all. There was a good representation at the meeting.

### Twin City Activities

Attendance at a Twin City Association of Purchasing Agents meeting was terrific with 197 members and guests present. There were also 138 attending the plant tour at Remington-Rand Univac. Such attendance is holding us the association top percentage basket for the District as well as the National.

Owens-Corning Fiberglas Corporation sponsored a program for the evening feature of a later meeting with R. F. Black, Minneapolis branch manager, and A. T. Larned, sales representative carrying the program. The subject of their program was "Many Fibers—Many Uses". They had a complete line of displays of a wide application of "Fiberglas" covering its uses in the fields of re-inforced plastics, insulation, sporting goods, building materials, etc.

For More Information Write No. 258  
on Inquiry Card—Page 32→  
PURCHASING



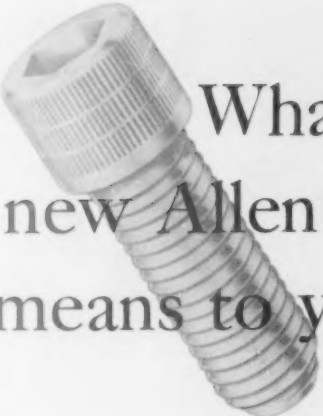
**HERE'S**

# ALLEN

**TODAY!**



# What this new Allen plant means to you...



If hex-socket screws have any place in your life at all, our new plant at Bloomfield, Connecticut, has unlimited advantages for you!

If you are a distributor of Allen products, for example, this new plant and its expanded facilities for engineering and production mean prompter shipments than we have ever before been able to give you, and both new products for your customers and improvements in existing products—all coming along rapidly now that we have the room we need, and the new equipment we have wanted. If you're an engineer or designer, the modern facilities of this new plant make available to you greatly increased engineering and metallurgical services in the development of dependable fastening for the products you're designing—and higher standards of precision than ever before. If you're a manufacturer, this new plant of ours is bound to be a rich source for new ideas in fastening, and new products that will make your own products better.

We've picked a few interesting highlights to show you here ... but there are too many things by far to put on paper! This new plant has to be *seen*.

*Malvern J. Mather*

MALVERN J. MATHER, President.



Allen's Quality Control Division has been greatly expanded. At left, thread form and lead of a socket head cap screw are inspected on a J&L optical comparator. Next is the gage control section. At right, technicians measure pitch diameter by the 3-wire method, to an accuracy of .0001, and inspect surface finish of Allen Dowel Pins to an accuracy of 1 microinch R.M.S.

Ample room to work effectively characterizes every department of this new plant. This section of the new metallurgical laboratory shows two Tinius Olsen tensile machines, and precision testing equipment in the background. The laboratory has a metallograph room, and a special fatigue testing room.



Here's ample room for storing a tremendous inventory of wire and bar stock, so that any type or size is instantly available for processing. A unique conveyor system, designed specially for Allen, handles bar and rod stock.

## A FEW FACTS ABOUT OUR NEW PLANT...

About seven miles from Hartford, our new plant is located on a 32-acre site in Bloomfield, Connecticut, with plenty of room for substantial expansion. The plant comprises a 250,000 square-foot single story factory section, and a two story 20,000 square-foot office building, connected by a glass enclosed corridor that also serves as main entrance and reception room.

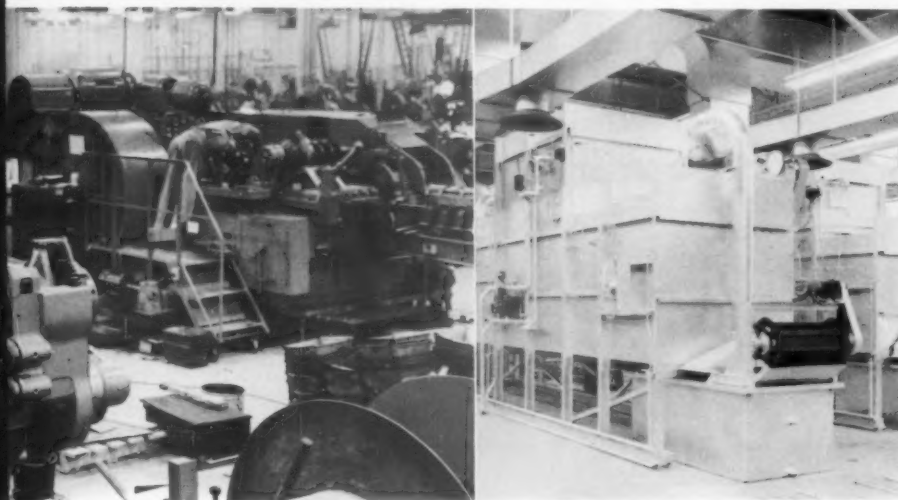
The open, almost partitionless, layout of the factory section permits an extremely efficient production flow around the perimeter of the building. A central core within this circular production line provides for service functions, such as quality control and testing, storage, tool cribs, and maintenance.

Layout and construction of the new plant were worked out over a two-year period, with scale models of all equipment. New equipment has all been specially designed for this new plant, to make it the most modern facility anywhere for production of hex-socket screws and related products.





In this section of the large grinding department is a battery of centerless grinders for production of ground thread set screws to Class 3A and special thread fits. Coolants are kept clean by magnetic separators, and precipitrons maintain clean working atmosphere.



Part of the heading department, where socket screw products are blanked by cold, warm, and hot heading processes. Large machines in foreground are progressive headers for manufacture of large-size socket screw products.

Our new heat treating department was specially engineered for this new plant. Shown are two new Holcroft units for hardening, quenching and washing, and tempering. Not shown here is new ACF rotary furnace for carburizing dowel pins.

A very large area is allocated to finished products storage, enabling us to make prompter shipment of a wider range of standard stock items. Flow is rapid and direct from these racks, to the shipping department in the rear, and on to the large truck dock just beyond.



These precision products have made **ALLEN** the number 1 name in the socket screw field!



Leader Point  
Cap Screw



Allen Button Head  
Cap Screw



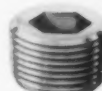
Allen Flat Head  
Cap Screw



Allenut



Allenpoint  
Set Screw



"Tru-Round"  
Pipe Plug



Allen  
Shoulder Screw



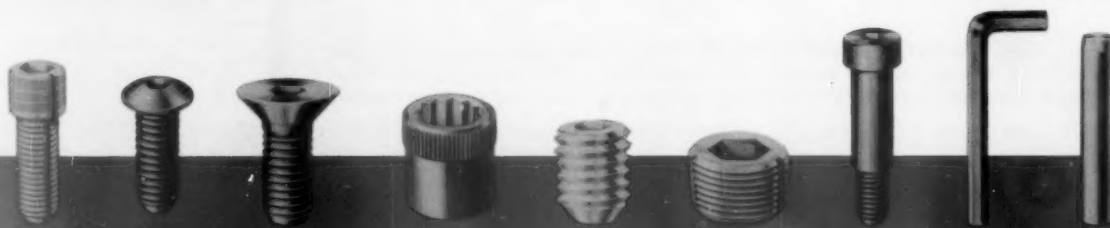
"Tru-Ground"  
Dowel Pin



Allen Hex Key



ALLEN Hex-Socket Cap and Set Screws, and related products, are stocked and sold by leading Industrial Distributors throughout the country.



**THE ALLEN MANUFACTURING COMPANY**

HARTFORD 1, CONNECTICUT

*Plant at Bloomfield, Connecticut • Warehouses at Chicago and Los Angeles*

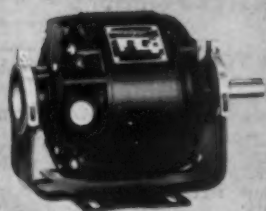
# Here Precision Counts...



A fine racing car must be *precision-designed* and *precision-built* ... as must the motors for your appliance or equipment applications. At Emerson-Electric, you get the benefits of more than 65 years of experience in solving motor-drive problems... plus unique production facilities that produce *in volume* the precision motor specifically designed for you.

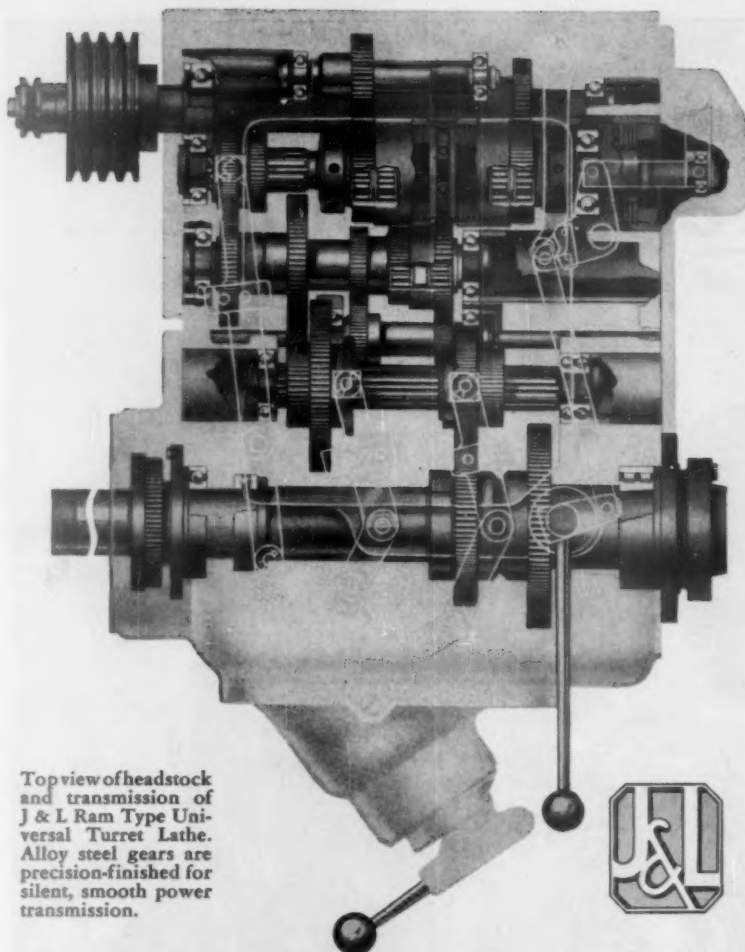
Remember...

- Emerson-Electric has more than 100 skilled engineers ready to offer you on-the-spot service from design right on through application tests.
- Emerson-Electric produces *custom-engineered* motors to suit your specific needs.



To solve your motor-drive problems with precision, call, wire or write Dept. M-343 today. The Emerson Electric Mfg. Co., St. Louis 21, Mo.

**EMERSON-ELECTRIC** of St. Louis • Since 1890



Top view of headstock and transmission of J & L Ram Type Universal Turret Lathe. Alloy steel gears are precision-finished for silent, smooth power transmission.

## Perkins Gears Used by Jones & Lamson

Jones & Lamson Machine Company, famous as manufacturers of the world's most accurate and powerful turret lathes, use Perkins precision gears for efficient, dependable performance. Perkins custom-cut gears are precision-made to exact specifications. They eliminate wear, noise and backlash. Our OEM customers know Perkins means dependable service and longer gear life. Perkins' long experience in producing precision gears could bring profitable benefits your way, too! Ask our engineers to work with you designing or estimating your next gear order.

WRITE TODAY for folder showing bevel, spiral, helical and spur gears; ratchets, sprockets and ground-thread worms; face gears, generated and curvic clutches; made by Perkins in many sizes from all materials.



Perkins Machine & Gear Co., West Springfield, Mass.

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

**PERKINS**  
MACHINE AND GEAR CO.

Dept. 47, West Springfield, Mass.  
Telephone: REpublic 7-4751

For More Information Write No. 260 on Inquiry Card—Page 32

## Association News

### Affleck Addresses Northeastern Penn. P.A.'s

The regular meeting of the Purchasing Agents Association of Northeastern Pennsylvania was held at the Hotel Sterling, Wilkes-Barre, Pa., with President Fred F. Gilbert presiding. The invocation was given by District Vice-President J. G. Brandamore.

The meeting was known as the "National Presidents Night." National President Gordon Burt Affleck of Salt Lake City, Utah, gave the major address of the evening. Other honored guests were Messrs. Paisley Boney, chairman of national committee on public relations, District 5; John J. Fox, president of the Lehigh Valley Association; and Joseph F. Keleman, national director of the Reading Association. All addressed the meeting. Then President Gilbert presented an anthracite souvenir to National President Affleck as a memento of his visit to the Association.

Thomas J. White and his public relations committee did a wonderful job of covering this meeting with both Newspapers and T. V. The banquet committee under Ralph Lewis arranged a delicious dinner and the cocktail hour was one of good fellowship.

There were 13 Members from the Lehigh Valley Association and three Members from the Reading Association. There were 58 present including the wives of the officers and Mrs. Affleck.

### Saginaw Valley P.A.'s Hit Timber Trails

A recent meeting of the Saginaw Valley Purchasing Agents Association was held at Timber Trails in Midland.

Topic for the meeting was thoughts for business in general and purchasing in particular. Ralph Parker of Merrill Lynch, Pierce, Fenner and Smith discussed securities and investments. A short business meeting preceded the speaker.



## Tired of slow deliveries on tapes?

A network of 3M tape distributors from coast to coast assures you of getting the "SCOTCH" Brand Pressure-Sensitive Tape you need—*when* you need it! No costly delays, no expensive inventories. And only "SCOTCH" Brand gives you *more* . . .

"SCOTCH" Brand helps reduce costs by matching the right combination of tape and "3M-MATIC" Taping and Dispensing equipment to your production needs. 3M Customer Engineers will gladly show you how without cost or obligation.

"SCOTCH" Brand gives you consistent top quality—thanks to the finest quality-control standards in the industry. 3M carries on a continuing program of research to improve, create or "tailor" tapes to fulfill your exact needs. And 3M Technical Service groups are as near as your nearest telephone through your local "SCOTCH" Brand representative.

No wonder "SCOTCH" Brand is your best buy in tapes! Better specify "SCOTCH" Brand—and stick with it!

*When tape costs so little, why take less than*

REG. U.S. PAT. OFF.  
**SCOTCH**  
BRAND

**Pressure-Sensitive Tapes**

"SCOTCH" IS A REGISTERED TRADEMARK FOR THE PRESSURE-SENSITIVE ADHESIVE TAPES OF 3M CO., ST. PAUL 6, MINN. EXPORT: 99 PARK AVENUE, NEW YORK 16, CANADA; LONDON, ONTARIO.

**MINNESOTA MINING AND MANUFACTURING COMPANY**

**. . . WHERE RESEARCH IS THE KEY TO TOMORROW**



## Constantly drenched by a mist of oil ...yet Dayton Cog-Belts\* LAST OVER 20 TIMES LONGER

—Mr. Darrell Kemler, Maintenance Foreman,  
Union Steel Products Company, Albion, Michigan.

"There's always a mist of oil around each of our 28 wire-straightening and cut-off machines," states Darrell Kemler, Maintenance Foreman for Union Steel Products Company. "That's why ordinary V-Belts won't last more than 5 to 7 days and why we were spending an average of \$700 a week just to replace V-Belts that were stretching, slipping and finally breaking.

"That was three years ago, before we switched to oil-resistant Dayton Cog-Belts. The life of a Cog-Belt? It's 24 hours a day, 5 days a week, for an average of seven months ... or at least 2000% longer than any V-Belt we've used before.

"Aside from the very obvious advantages, we've practically eliminated one of the dirtiest and most time-consuming jobs in the plant. Changing a set of belts meant a man literally worked in a pit of oil while he took the machine apart. And, it used to be a 24 hour job ... requiring an extra millwright

on the night shift. Cog-Belts effectively reduced this excess overhead.

"As soon as we'd switched to surer-gripping Dayton Cog-Belts we found they increased production by maintaining constant torque. That's important because we must maintain a constant ratio between arbor speed and wire feed. When belts slip, the wire can't be straightened, or worse, we get galled wire which is seldom detected until after the product is assembled and plated. Obviously, all this defective material ends up in the scrap pile.

"Part of the tremendous success we've had with all kinds of Dayton V-Belts is due to the training and trouble-shooting help that Dayton gives us. Through meetings, trouble-shooting clinics, motion pictures and demonstrations, all our men have learned the proper way to use and install V-Belts and how to analyze power transmission problems. We feel the Dayton Preventive Maintenance Program saves us hundreds of dollars."

*For more information and help in solving your power transmission problems, see BELTING in the Yellow Pages for the name and phone number of your nearest Dayton Distributor. Or write the Dayton Rubber Company, Industrial Replacement Division Dayton 1, Ohio.*

\*T.M.



"Here's a Cog-Belt on the wire-straightening and cut-off machine that is constantly sprayed with oil. Still, it gives us seven months service without slipping where another belt would fail in a week."

Shown (l. to r.) with Mr. Kemler are Mr. Ernest Weber of Kendall Hardware-Mill Supply Co., who first recommended Cog-Belts, and Ross Annatoyn, the Dayton Rubber Co. representative.

"No other belt can touch the efficiency of Dayton Cog-Belts. We use them on this eccentric cam-operated basket trimmer because of their sure-gripping die-cut edges and their ability to transmit up to 40% more horsepower without slipping."



**Dayton Rubber** *World's Largest Manufacturer of V-Belts*  
 THE DAYTON RUBBER COMPANY • INDUSTRIAL DIVISION • DAYTON 1, OHIO

NOVEMBER 24, 1958

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163

# Recipe for low cost cleaning

## 1. Use the right material

Oakite has over 100 specialized cleaning and metal-treating materials. There's one designed specially for your job.

## 2. Use it right

Your local Oakite man considers it his responsibility that you get most cleaning per ounce of material ... by using the most efficient concentration, temperature and method of application.

## 3. Mechanize where possible

Oakite has a complete line of mechanized cleaning units — powered by steam, hot water or air pressure. There's a unit small enough to hold in the palm of your hand ... and one big enough to clean the interior of an oil barge!

## 4. Add Oakite know-how

This is the ingredient that saves time and money on every cleaning operation...the experience of hundreds of Oakite Technical Service men, covering almost half a century of industrial cleaning experience.

Easiest way to use this recipe for low-cost cleaning is to get in touch with your local Oakite man. Call him now, or write to Oakite Products, Inc., 54 Rector Street, New York 6, N.Y.



Export Division Cable Address: Oakite

Technical Service Representatives in Principal Cities of U. S. and Canada

For More Information Write No. 263 on Inquiry Card—Page 32

## Association News

### Georgia P.A.'s See Delta

Fifty-seven purchasing agents of the Georgia Association recently made an eye-opening trip through the shops of Delta Air Lines, Inc. at Atlanta's Municipal Airport followed by a delightful dinner at a nearby restaurant with Delta Airlines as host.

The visit to Delta's shops proved to be a valuable opportunity to see what goes on "behind the scenes" in keeping a giant airline aloft. Of particular interest was the meticulous care that goes into maintenance of all equipment, especially the periodic rebuilding of airplane engines. Everyone came away with renewed confidence in air transportation as exemplified by Delta Air Lines, Inc.


A short business meeting of the association followed the dinner. The application for membership of Mr. Walter L. Stearman, assistant treasurer and purchasing agent of Wyant & Sons Paper Company of Atlanta, was approved. Brief reports by the respective committee chairmen were made on the highly successful 7th District workshop held in Atlanta, the current business survey and Michigan State University's purchasing seminar.

### P.A.'s of C.M. Learn Soft Approach

The Purchasing Agents of Central Michigan met recently at the Arbor Hills Country Club, Jackson, Michigan. Speaker for the evening was E. Brooke Lee, national accounts manager of the Scott Paper Company. Mr. Lee's subject was "The Soft Approach," which described briefly the purchasing agent's responsibility and what this means to salesmen. Speaking with Mr. Lee was S. R. Muntean, Great Lakes territory manager of five states for Scott Paper, and J. B. Richey, district sales manager of Michigan for Scott Paper. Two fifteen minute color films were shown, followed by a short question and answer period.

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PURCHASING



**BARNES  
BANDS ARE  
BEST BY TEST  
FOR FRICTION  
CUTTING!**

## **BARNES BAND SAWS GIVE YOU MORE FOR YOUR MONEY**

Barnes Hard Edge, Flexible Back Band Saws are made for high production metal sawing at lowest cost-per-cut.

Barnes produces 4 types of band saws—a total of 70 specifications—for all cut-off and contour sawing. You are sure of the right blade for lowest cost per cut.

**ARC-LINE Raker Set  
ARC-LINE Wavy Set**

**BARNES SKIP TOOTH  
BARNES HOOK TOOTH**

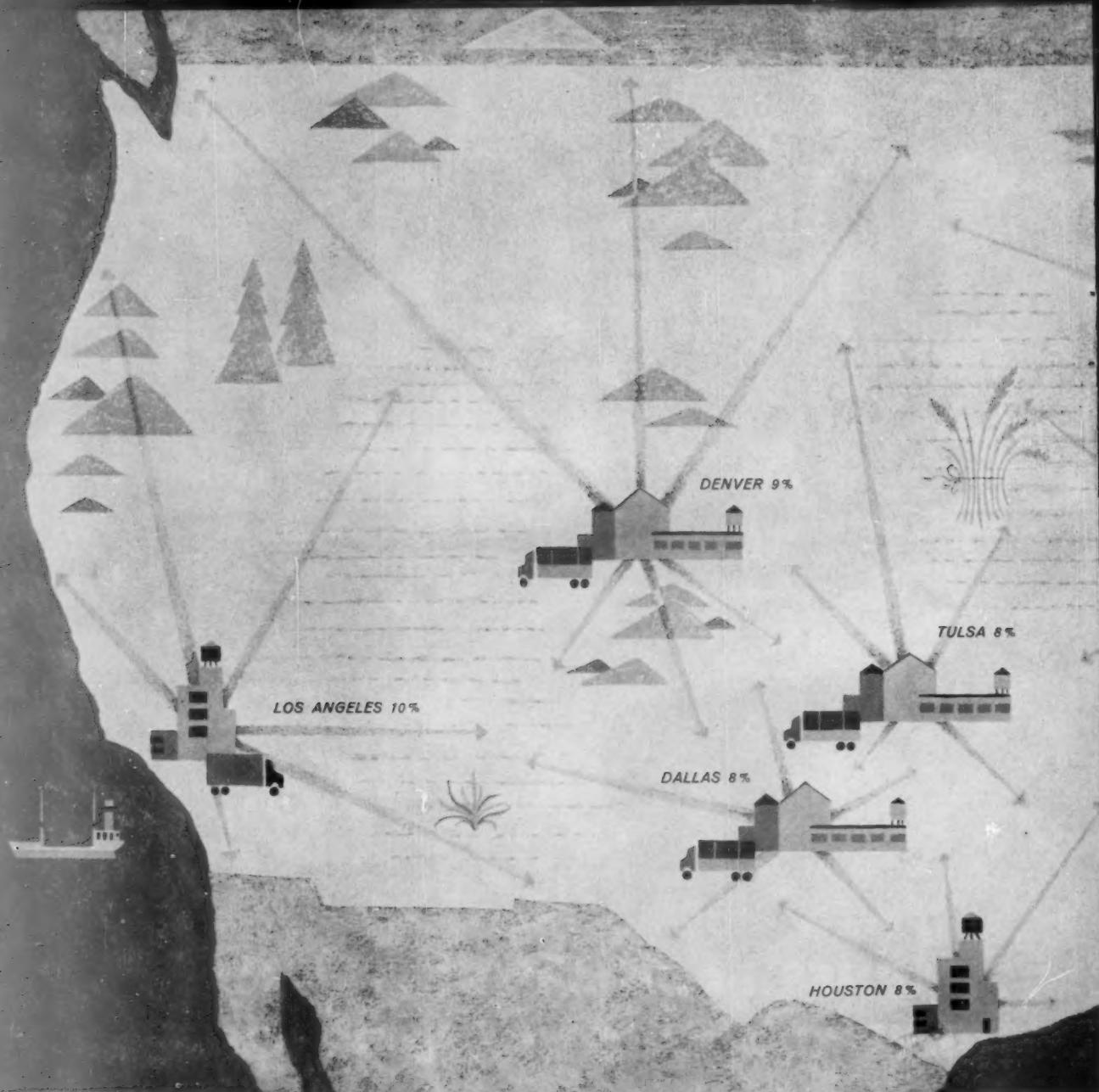
All Barnes band saws are packaged for your convenience:  
100 ft. coils, 250 to 500 ft. random length coils  
and factory welded bands.

*Call Your Barnes Distributor for the best in blades*



**W. O. BARNES CO., INC.**

1297 TERMINAL AVENUE • DETROIT 14, MICHIGAN



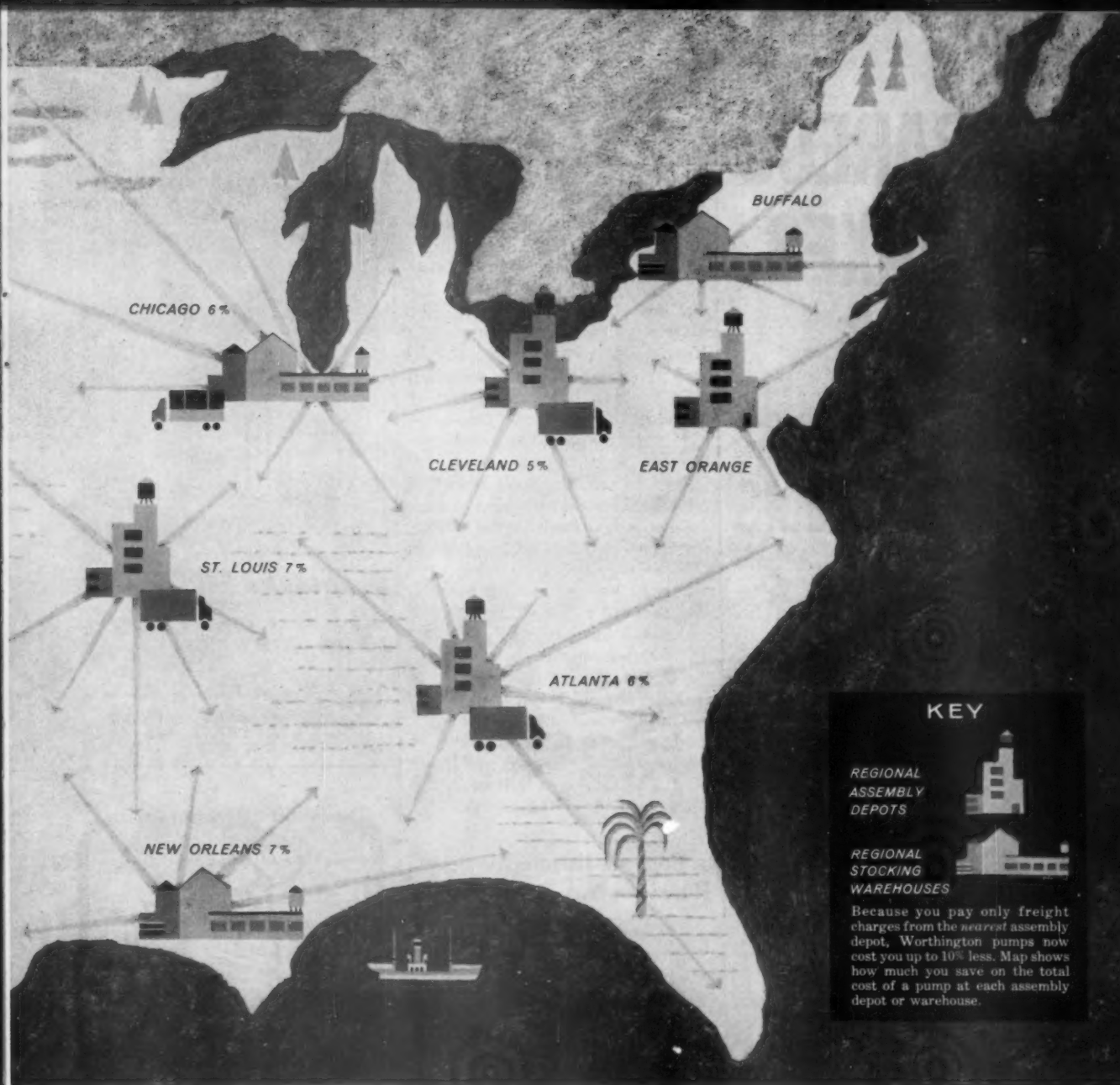
## NEW SAVINGS ON

Look at the map  
to see how much  
*less you pay!*

Worthington has reduced the cost of SESC pumps by spanning the nation with *new regional assembly depots*. In addition to the primary depot in East Orange, (N.J.), others have been established in Cleveland, Atlanta, St. Louis, Houston and Los Angeles. Worthington can now pass along savings to you in three ways. One, on the price: as much as 10% depending upon your location. Two, on time—because your order can be processed and shipped in a matter of hours. Three, on parts service—because each of the assembly depots maintains a stock of spare parts.

In addition to assembly points, Worthington also maintains stocks of completely built pumps in Buffalo, Chicago, Denver, New Orleans, Dallas and Tulsa.

But there are other reasons why SESC (standard end



# WORTHINGTON PUMPS

suction centrifugal) is far and away your best pump buy. Standardization gives you a high degree of interchangeability. Pumps may be all iron, all bronze, standard fitted, or Worthite\*. 120 different sizes, with open or closed impellers are available with capacities up to 2700 GPM and heads to 550 Ft. Conventionally packed boxes or mechanical seals are optional in all pumps, and conversions from packed boxes to seals may be made on units in the field. All in all there are 70,480 modifications of the SESC pump to choose from—the broadest combination the pump industry has to offer.

SESC pumps also give you these benefits of standardization. You can cut your spare parts inventory by 50% because only four bearing frame sizes are used for the entire 120-pump line, and all pump parts are interchange-

able. This means reduced downtime if repair or conversion is made. Finally, one basic design for the complete line simplifies maintenance and lowers overall operating costs.

Take advantage of the new low costs—the speeded delivery—the many outstanding features of the Worthington SESC line now. For detailed information, write for Bulletin W-300-B48. Worthington Corporation, Section 20-3, Harrison, New Jersey. In Canada: Worthington, Ltd., Brantford, Ontario.

\*Worthite is a high nickel, high-chromium, low-carbon alloy steel. Trademark Reg. U. S. Pat. Off.

## WORTHINGTON

# BARECO WAXES SOLVE MANY PROBLEMS

In addition to having most of the desirable characteristics of natural waxes, Bareco microcrystalline waxes are superior in many ways:

- laboratory-controlled uniformity
- constant purity
- dependable domestic supply
- substantial price advantage

## WAREHOUSE STOCKS CONVENIENTLY LOCATED FOR PROMPT DELIVERY

Do you have a wax problem? Use the coupon below for wax samples and/or recommendations. If we don't have the wax you need, we'll make it!

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Company



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BARECO WAX CO. AP-58-3  
Box 2009, Tulsa, Okla.

Gentlemen: Send us **BARECO WAX SAMPLE** to meet following characteristics

No cost or obligation for samples or recommendations.

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ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

ZONE STATE \_\_\_\_\_

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## Association News

### British Columbia Business

Members who attended a recent general meeting of the Purchasing Agents Association of British Columbia enjoyed a film showing entitled "The English Sea." It was presented by Mr. Bob Lee, asst. advertising manager of the Caterpillar Tractor Corporation. Mr. Lee was introduced by Mr. Bob Norrie, 1st vice-president. Mr. Norrie also extended the thanks and appreciation of the membership for his time and effort in showing the pictures.

Mr. Norrie gave the members a short resume of the work involved in building such a project. He told them that the idea of such a scheme had been in the talking stage for upwards of forty years before any definite action was taken. It is scheduled for completion sometime in 1959. In order to make the seaway navigable for a 25,000-ton ship from the Atlantic Ocean to the inland port of Duluth required the moving of 180 million cubic yards of dirt, mud, silt, etc., to say nothing of the amount of concrete, steel, etc. used. The total cost will be in the neighborhood of \$1.2 billions.

### Central Illinois Ass'n. Receives N.A.P.A. Charter



A charter of affiliation with N.A.P.A. was presented to Purchasing Agents Association of Central Illinois by III District Vice-President George S. Forbes at its second annual executives' night in Lincoln, Illinois. Officers of the Central Illinois Association accepting the charter are: National Director Alvah Moffatt, general purchasing agent, Mississippi Valley Structural Steel Co. on the left; and President, J. M. Anderson, purchasing agent, Pana Refining Co. on the right. This new association now boasts a membership of 60 from Decatur, Springfield, Peoria and other central and eastern Illinois cities.



Need fast delivery  
of corrugated boxes?

**Call** your H&D  
Packaging Engineer

**HINDE & DAUCH**

Division of West Virginia Pulp and Paper Company

Sandusky, Ohio  
15 Factories  
42 Sales Offices



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### magic?

Turn plastics problems into answers—like magic! You'll get top-quality molded parts . . . reliable on-time deliveries . . . expert design help with one call to Chicago Molded. For here's the skill from 38 years' experience . . . unbeatable production facilities . . . engineers and designers to help eliminate costly, unnecessary trials. So for the help and service you need—call!

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PRODUCTS CORPORATION

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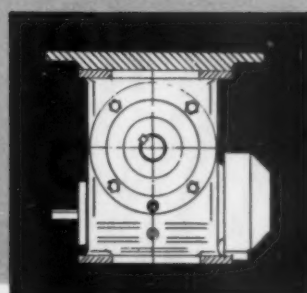
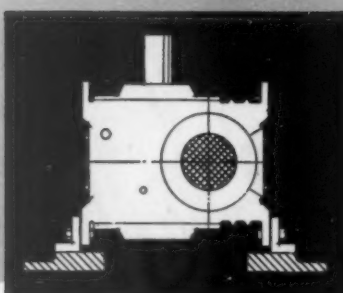
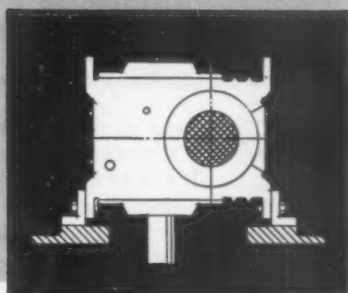
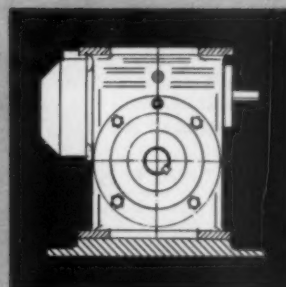
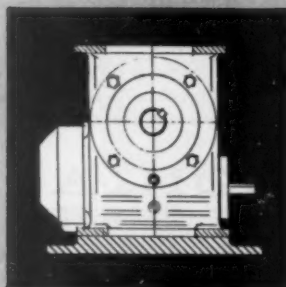
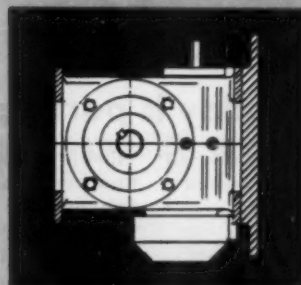
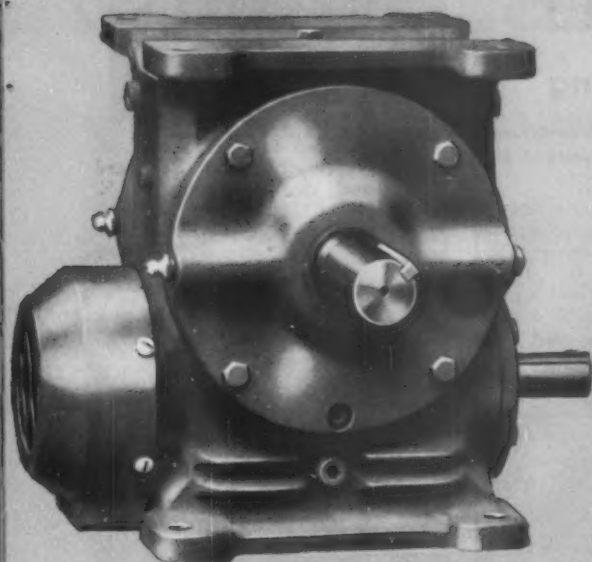


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# DE LAVAL

## VERSO WORM GEAR SPEED REDUCERS

*adapt to any  
mounting requirement*



### *More Horsepower per Dollar*

- Fan cooled
- Involute helicoid thread form has heaviest load capacity of any type of worm gear
- Sturdy cast iron case and tapered roller bearings ensure maximum load capacity
- Gear shafts are heat treated alloy steel
- Worm and worm shaft is a single piece of nickel alloy steel
- Gear is made from centrifugally cast bronze
- Finest American craftsmanship

Now De Laval offers you a complete new line of versatile worm gear speed reducers. These reducers are designed for heavy duty industrial work and continuous running under demanding service. The units may be mounted in any position.



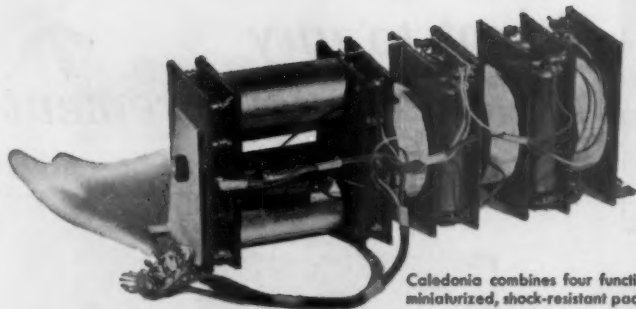
For further information write for Bulletin 5018



**DE LAVAL**

**Steam Turbine Company**

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Caledonia combines four functions in miniaturized, shock-resistant package.

## Electronics today is partly packaging

**PROBLEM:** Design a small (50 cubic in.) and light (3½ lbs.) unit that contains:

1. a positive d.c. pulse selector
2. a negative d.c. pulse selector
3. a high level 60 cps band pass filter
4. a 400 cps detector circuit (all with tight tolerances, naturally).

Design it to operate within the usual military environmental conditions, including high vibration and shock.

**SOLUTION:** We assembled the components shishkabob style. Then mounted the

shishkabob in a metal case filled with an epoxy foam compound to hold the parts in a firm cushion.

**TIME ELAPSED:** From original assignment, through design to volume production—two months.

If such quick, dependable assistance in design and production can make your work more effective, we'll be glad to hear from you. We offer experience, good production facilities, and a recognized quality record.

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For More Information Write No. 270 on Inquiry Card—Page 32



### SPECIAL RIVETS

like some of the samples shown here . . . or the more commonly used tubular and split rivets . . . they're all alike to the American Rivet Co. And always—our own special brand of quality and service that gets you what you want when you want it.

**THE AMERICAN RIVET CO., Inc.**  
849 N. Kedzie Ave., Chicago 51, Ill.

Write for price list. For specials, send specifications for prices.

**BUY AMERICAN** *Tubular and Split* **RIVETS**

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## Association News

### South Bend Association Features Education Series



Shown here, left to right, are W. H. Van Derbeck, National Standard Co., second vice president; N. E. Steep, Elkhart Paint Mfg. Co., national director; Professor V. R. Raymond, College of Commerce, Notre Dame University; H. J. Baker, U. S. Rubber Co., first vice president.

The Purchasing Agents' Association of South Bend opened their 1958-1959 season's activities with a meeting devoted to the first of a series of five educational topics.

Under the direction of Professor Vincent R. Raymond, of the University of Notre Dame College of Commerce, the series is designed to "increase the individual purchasing agent's efficiency in his present position, and prepare him for greater future responsibilities."

The theme of the first meeting was "The Philosophy of Purchasing and Its Role in the Organization." A discussion of an actual case history taken from the files of the Harvard Business School concerned the actions of a Manager of Purchases in a number of situations.

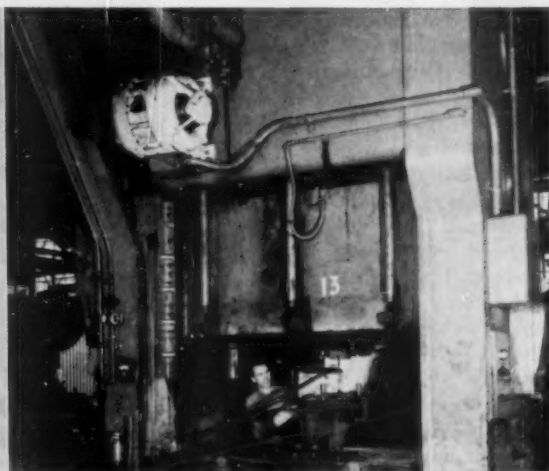
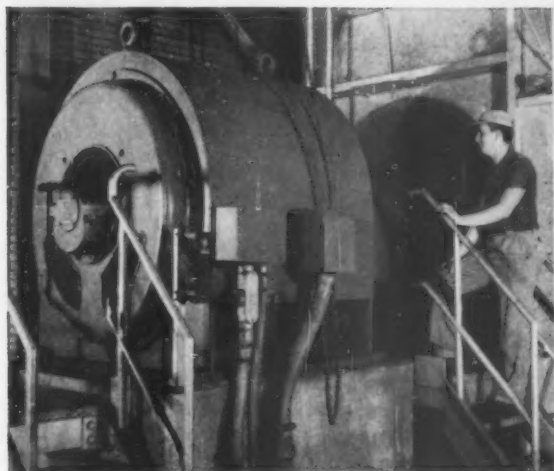
"Discussions of this type", stated Professor Raymond, "are not to solve a given problem or situation, but rather to stimulate the group into active discussion and creative thinking—ultimately to gain from a common experience."

The interest shown by the membership in a series of this type was evidenced by the fact that this program drew the largest attendance in the Association's recent history.

**SEE PAGE 32  
FOR INQUIRY CARD**

# stop costly motor failures...

**WITH DOW CORNING SILICONE INSULATION**



Silicones handle overloads for a fan motor here . . . and here up-rate the power of a press

## **NEW MOTOR OR REWIND . . . SILICONES ADD DEPENDABILITY**

Motors insulated with Dow Corning Silicones have greater resistance to heat, overloads, moisture, and corrosion. This means they give you longer, more trouble-free service life. For example, the fan motor above often operates at a 30% overload; the press motor withstands both high ambients and overloading.

In hot areas, damp or corrosive atmospheres, or on tough duty cycles, motors insulated with Dow Corning Silicones are more dependable by far. Whether you buy new motors or have old ones rewound . . . Specify Silicone Insulation and Save.

## **YOUR BEST SOURCE FOR ALL SILICONES . . . DOW CORNING**

Adhesives, defoamers, lubricants, cosmetic and polish additives, electrical varnishes, paint resins, intermediates, Silastic® (silicone rubber), Sight Savers®, paper coatings, laminating resins, water repellents, and release agents.

These and many other Dow Corning Silicones are cutting costs for industry . . . and are helping to make good products better. For more information, call the branch office nearest you or write direct to Dow Corning, Dept. 2011.

When you consider the entire cost,  
silicones cost less.

first in  
silicones

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For More Information Write No. 272 on Inquiry Card—Page 32

## Industry Developments

*They had to move a lake to do it, but now there's a...*

### New Asbestos Supply Source

**T**HERE'S AN important new supply source for asbestos buyers. American Smelting and Refining Company recently began full-scale operation of its new \$36 million mine and mill at Black Lake, Quebec. Output from the mine is expected to increase free world asbestos fiber supply by 7%.

Owned and operated by Lake Asbestos of Quebec, an Asarco subsidiary, the Black Lake mine and mill can definitely be regarded as a long term supply source. It's estimated that open-pit mining will yield 100,000 tons of asbestos a year for the next 20 years. After that underground mining will probably be necessary. Capacity of the new \$9 million mill is rated at 5000 tons of ore per day.

#### Only The Raw Material

In entering what is a new field for Asarco, the company—as with its nonferrous operations—will act only as supplier of raw material. It will not become a manufacturer of asbestos products.

Sales are expected to follow the pattern of other Canadian producers—50% to the U. S., the rest mainly to Europe, Latin America, Japan and Australia. Average price of the fiber has been pegged at about \$130 per ton.

Sizing up the markets for asbestos, the building trades are the most important users (asbestos cement, roofing shingles, siding, floor tiles). The auto industry is another major buyer (clutch facings, brake linings, woven linings). And of course insulation applications are also an important market. A newer use: missile nose cones.

Aside from the obvious fact that Asarco started its new venture because of the profit potential, the company had another



New asbestos mine at Black Lake, Quebec, is expected to produce 100,000 tons of asbestos fiber a year. Pools in the background are what is left of Black Lake which had to be moved to get at the ore.

reason—diversification. It's Asarco's hope that the relative stability of the asbestos market will compensate for the cyclical gyrations it faces in the nonferrous markets.

#### Move The Lake

An interesting sidelight on the asbestos mine is that the ore body now being mined once lay under Black Lake. To get to the ore, the lake had to be moved into new man-made basins. Over 55 billion gallons of water had to be pumped and 27 million cubic yards of mud and silt had to be removed before mining operations could be started.

Possible offshoot from this engineering achievement: the information gained in submarine mining may make it possible to develop underwater ore bodies which up to now have been judged too difficult to tackle.



Ton-sized chunks of asbestos ore are being dumped into a chute leading to the primary crusher at Asarco's new \$9 million asbestos mill.

# POWELL

world's largest family of valves\*

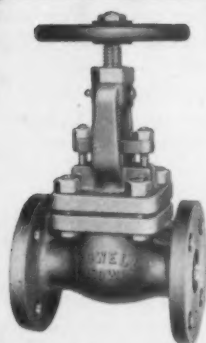


Fig. 2475 — Stainless Steel Globe Valve for 150 pounds W. P. Outside screw rising stem and yoke, bolted flanged bonnet. All dimensions conform to latest standards. This design is also available with screwed ends or socket welding ends.



Fig. 2201 — Semi-steel, flanged end Lubricated Plug Valve for 175 pounds W. O. G. Single gland type. This design can be furnished with screwed ends. Sizes 1" to 4". Other types, larger sizes, higher pressure and gear operated valves are available.



Fig. 1821 — Bronze 125-pound Solder Joint Gate Valve for use with copper pipe or tubing. Screwed-in bonnet, inside screw rising stem. Interchangeable solid or split wedge discs. Inside screw non-rising stem valves can be supplied.

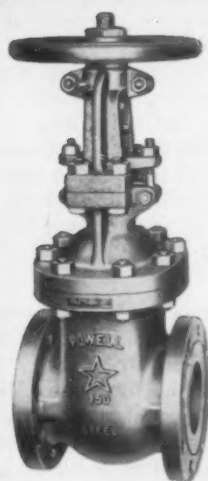


Fig. 2600 — New 150-pound Bronze Full Flow Globe Valve. 500 Brinell hardened, stainless seat ring and disc. Nominal pipe size seat opening and extra high lift of disc assure full flow with minimum pressure drop and turbulence. Can be supplied with indicator collar and arm for visual control. 200 and 300 pound valves also available.



Fig. 2608 — High grade Bronze Globe Valve for 200 W. P. 500 Brinell stainless steel seat ring and disc. Nominal pipe size opening through seat and extra high lift of the disc assure fuller flow with minimum pressure drop and turbulence. Available for 150 and 300 pounds.

Fig. 1503 — Steel Gate Valve for 150 pounds. Outside screw rising stem. Heavily bolted bonnet and yoke. Precision fitted, accurately guided solid wedge disc. Valves with welding ends can also be supplied.

\*and in this family there's a valve for every flow control requirement—for handling water, oil, gas, air, steam and corrosive fluids—available in the most required sizes and types. If your local distributor can't supply you, or if you need specially engineered valves for unusual conditions, write

**THE WM. POWELL COMPANY • Dependable Valves Since 1846 • Cincinnati 22, Ohio**




## Picture of worker saving money

*He's helping cut maintenance 50%  
with Steiner roll towels*

Here's why roll paper towels reduce washroom maintenance costs: Controlled roll paper towel dispensers hold more towels . . . in a cabinet of any given size you can get almost twice as many towels on a roll as you can folded. Also, Steiner control cuts towel waste . . . makes supply last longer. Means your roll towel cabinet has to be refilled only half as often as a folded towel cabinet. Saves as much as 50 percent in maintenance man-hours.

Just install Steiner dispensers in your washroom on a trial basis and see how you save. Your local janitorial supplier or sanitary paper distributor can help you. For more information send in the coupon below.



### STEINER COMPANY

Dept. 11C-2, 740 N. Rush St., Chicago 11, Ill.

Please send me free bulletins on Steiner controlled roll paper towel dispensers.

NAME

COMPANY

STREET

CITY  ZONE  STATE

For More Information Write No. 274 on Inquiry Card—Page 32

## Industry



### Allen Moves Into New Plant

After nearly fifty years of manufacturing hex-socket screws and related products in downtown Hartford, Connecticut, The Allen Manufacturing Company is settled in its new plant, on a 32-acre site in Bloomfield, about seven miles from Hartford.

Manufacturing began in the new plant early in September, after a move that involved the transfer of hundreds of machines from the old location in Hartford. Major installations of new equipment, for production, engineering and testing have been made in the new plant.

The quarter-million square foot area of the factory section has been laid out in an efficient, direct-flow production line that follows the perimeter of the building, from receipt of raw materials through processing departments, inspection, to packing and shipping. The open, almost partitionless, layout of the floor space has made it possible to plan each department for maximum effectiveness in performance of its operations.

A new boring and reaming tool manufacturing firm, **Muskegon Tool Industries, Inc.**, has been formed in **Muskegon, Mich.** It has started production of tools similar to those formerly produced in Muskegon by Madison Industries, Inc. The firm expects to fill the gap left in the community's industrial picture when Madison closed its operation in Muskegon this year.

The Muskegon Tool Industries line will initially consist of metal-working boring and reaming tools with adjustable, floating cutters which automatically compensate for errors in tool alignment. Cut-

(Please turn to page 180)

For More Information Write No. 275  
on Inquiry Card—Page 32→  
**PURCHASING**

# Break this seal



See how  
A. O. Smith "seals out"  
the biggest single cause of  
fractional motor failure!

First major breakthrough in fractional hp motor design...

# revolutionary new

## ...for switch, actuator, capacitor, thermostat and terminal board

- 1** Seals out dirt, lint, insects and other matter. Ventilating air cannot contaminate these vital parts.
- 2** Provides complete protection against mechanical damage.
- 3** Sealed capacitor and terminal board assures easy, all-position mounting. Absence of externally mounted capacitor\* "dog house" and conduit box permits installation anywhere and in any position.
- 4** Bearings are prelubricated and sealed. Require no lubrication for the life of the motor.
- 5** Finally... ball bearing motors as quiet as sleeve bearing motors.
  - A.** No more "book-end" bearings. New design permits much closer bearing centers.
  - B.** Super-honed close tolerance bearings.
  - C.** Magnetic noises reduced to absolute minimum by special machining and assembly processes.
  - D.** Air noise practically eliminated through unique ventilation design.
- 6** Single phase motors with the new sealed starting switch are available from  $\frac{1}{3}$  to 5 hp. Included are specific designs for blowers, pumps, compressors, machine tools, and material handling equipment.



### Adjustable starting switch

Every A. O. Smith single-phase motor features the new exclusive adjustable starting switch. The vital switching action is no longer dependent on a build-up of tolerances throughout the motor. On every motor the switch is adjusted *after assembly* by turning the self-locking screw (A) to achieve a pre-set clearance between the switch button and the actuator. This setting assures proper contact alignment and positive switching action... guaranteeing maximum life for every motor. Field adjustments and/or replacements are just as easy.

\*Capacitor is internally mounted on motors rated 1 hp, 3600 rpm and  $\frac{3}{4}$  hp, 1800 rpm and smaller.

# sealed capsule

Please send me more comprehensive details on the A. O. Smith line of fractional motors —  $\frac{1}{8}$  to 2 hp — that feature Sealed Capsule design.

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Rigid or resilient base models available.

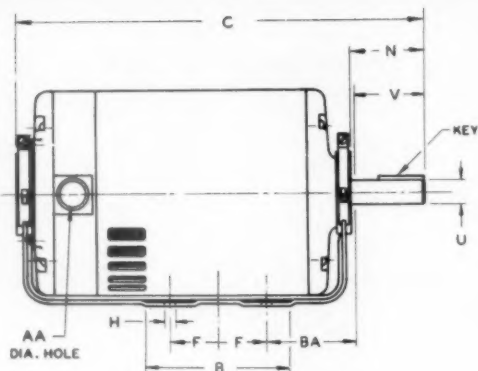
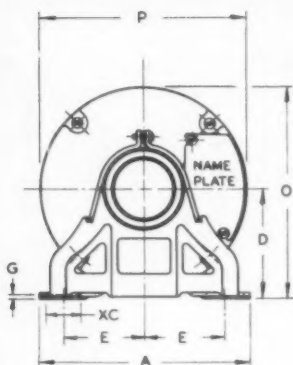
Through research  ... a better way

**A.O. Smith**  
CORPORATION  
ELECTRIC MOTORS

531 North 4th Street  
TIPP CITY, OHIO

179

**NEW...**  
**"SEALED CAPSULE"**  
**FRACTIONALS**  
**RIGID**  
**AND**  
**RESILIENT**  
**BASE**



**A.O. Smith**  
**ELECTRIC MOTORS**  
 531 North 4th Street  
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PAID  
 U.S. POSTAGE  
 Type C77, Oct. 1964  
 Permit No. 311

FRAME SIZE	DIMENSIONS IN INCHES										
	A	rigid B	resilient B	C	D	E	F	G	H	N	O
56-1	6 $\frac{1}{2}$	4 $\frac{3}{4}$	4	11 $\frac{3}{16}$	3 $\frac{1}{2}$	2 $\frac{1}{16}$	1 $\frac{1}{2}$	$\frac{5}{32}$	1 $\frac{1}{32}$	1 $\frac{15}{16}$	6 $\frac{11}{16}$
56-2	6 $\frac{1}{2}$	4 $\frac{3}{4}$	4	12 $\frac{3}{16}$	3 $\frac{1}{2}$	2 $\frac{1}{16}$	1 $\frac{1}{2}$	$\frac{5}{32}$	1 $\frac{1}{32}$	1 $\frac{15}{16}$	6 $\frac{11}{16}$
56-3	6 $\frac{1}{2}$	4 $\frac{3}{4}$	4	12 $\frac{11}{16}$	3 $\frac{1}{2}$	2 $\frac{1}{16}$	1 $\frac{1}{2}$	$\frac{5}{32}$	1 $\frac{1}{32}$	1 $\frac{15}{16}$	6 $\frac{11}{16}$
56-4	6 $\frac{1}{2}$	4 $\frac{3}{4}$	4	13 $\frac{3}{16}$	3 $\frac{1}{2}$	2 $\frac{1}{16}$	1 $\frac{1}{2}$	$\frac{5}{32}$	1 $\frac{1}{32}$	1 $\frac{15}{16}$	6 $\frac{11}{16}$
56-5	6 $\frac{1}{2}$	4 $\frac{3}{4}$	4	14 $\frac{3}{16}$	3 $\frac{1}{2}$	2 $\frac{1}{16}$	1 $\frac{1}{2}$	$\frac{5}{32}$	1 $\frac{1}{32}$	2 $\frac{1}{16}$	6 $\frac{11}{16}$
56-6	6 $\frac{1}{2}$	4 $\frac{3}{4}$	4	15 $\frac{1}{16}$	3 $\frac{1}{2}$	2 $\frac{1}{16}$	1 $\frac{1}{2}$	$\frac{5}{32}$	1 $\frac{1}{32}$	2 $\frac{1}{16}$	6 $\frac{11}{16}$

FRAME SIZE	DIMENSIONS IN INCHES						
	P	U	V	AA	BA	XC	KEY
56-1	6 $\frac{3}{8}$	$\frac{5}{8}$	1 $\frac{3}{4}$	.859 .864	2 $\frac{3}{4}$	1 $\frac{1}{32}$	$\frac{3}{16} \times \frac{3}{16} \times 1\frac{3}{8}$
56-2	6 $\frac{3}{8}$	$\frac{5}{8}$	1 $\frac{3}{4}$	.859 .864	2 $\frac{3}{4}$	1 $\frac{1}{32}$	$\frac{3}{16} \times \frac{3}{16} \times 1\frac{3}{8}$
56-3	6 $\frac{3}{8}$	$\frac{5}{8}$	1 $\frac{3}{4}$	.859 .864	2 $\frac{3}{4}$	1 $\frac{1}{32}$	$\frac{3}{16} \times \frac{3}{16} \times 1\frac{3}{8}$
56-4	6 $\frac{3}{8}$	$\frac{5}{8}$	1 $\frac{3}{4}$	.859 .864	2 $\frac{3}{4}$	1 $\frac{1}{32}$	$\frac{3}{16} \times \frac{3}{16} \times 1\frac{3}{8}$
56-5	6 $\frac{3}{8}$	$\frac{3}{4}$	2 $\frac{1}{4}$	.859 .864	2 $\frac{3}{4}$	1 $\frac{1}{32}$	$\frac{3}{16} \times \frac{3}{16} \times 1\frac{3}{8}$
56-6	6 $\frac{3}{8}$	$\frac{3}{4}$	2 $\frac{1}{4}$	.859 .864	2 $\frac{3}{4}$	1 $\frac{1}{32}$	$\frac{3}{16} \times \frac{3}{16} \times 1\frac{3}{8}$

**BLOWER**  
**MOTORS**  
**RESILIENT**  
**BASE**

HORSEPOWER	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	1	1	1 $\frac{1}{2}$	2
R.P.M.	3600	1800	3600	1800	3600	1800	3600	1800	3600	3600
FRAME SIZE	56-1	56-1	56-1	56-2	56-2	56-3	56-3	56-5	56-5	56-6

**GENERAL**  
**PURPOSE**  
**RIGID**  
**BASE**

HORSEPOWER	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	1
R.P.M.	3600	1800	3600	1800	3600	1800	3600
FRAME SIZE	56-1	56-1	56-1	56-2	56-2	56-3	56-3

Through research  ... a better way

**A.O. Smith**  
**CORPORATION**  
**ELECTRIC MOTORS**  
 531 North 4th Street  
 TIPP CITY, OHIO



**Behind this catalog** is a large, modern plant, offering the reserve capacity and flexibility needed to meet both your regular and emergency requirements for washers of all types — standard and special, any size, any metal, any quantity. *If you have not received this new 16-page catalog, write for your copy.* Joliet Wrought Washer Company, 210 Connell Avenue, Joliet, Illinois.

**JOLIET  
WROUGHT  
WASHER CO.** World's Foremost Producer of Washers

NOVEMBER 24, 1958

For More Information Write No. 276 on Inquiry Card—Page 32

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## Industry

(Continued from page 174)

ters will be interchangeable without removing bar from machine and will offer one-screw adjustment and free-cutting action. Standard cutters will be available in high-speed steel or with tungsten carbide tips; others will be made to customer specifications. The tools will have heat treated, high alloy steel bars with generous chip clearance and drive flats on shank in either straight shank or Morse taper models. Production is now underway and will reach full capacity as the firm's new plant is completed late this year.

The Cleveland Container Company is scheduled to open a new plant in Fair Lawn, N. J. this month. It will manufacture a complete line of composite cans, tubing and cores. This plant in Fair Lawn, in the northeast corner of New Jersey, will service the

New York metropolitan area, upper New Jersey, as well as New England. A present New Jersey plant at Jamesburg, will afford better service for the central and southern parts of the state, as well as the Philadelphia area.



De Laval Separator Company has moved its Chicago headquarters to 5724 N. Pulaski Rd. Costing nearly \$1,000,000, the new De Laval building was designed and built to the company's specifications. It is located on a four and one half acre tract and has 64,000 square feet. Fully air conditioned offices comprise 17,000 square feet. It will also provide warehouse and repair service facilities. The Chicago headquarters,

serves a twenty state area from Indiana to Utah and Canada to Mexico.

Molded Fiber Glass Tray Co., Linesville, Pa., has completed a new plant addition which adds 7,200 square feet of space for use in making its Toteline products. The Toteline firm produces all types of food serving trays, tote boxes and storage and shipping containers for varied industries, including baking, food processing, metal fabricating, electrical manufacturing and chemical processing. Its products are made of polyester resins and fiber glass, shaped, molded and cured on hydraulic presses.



"Don't get too comfortable, Jim . . . you won't be here that long!"

# DYSON LARGE FORGED NUTS

1 1/4" thru 8" BOLT DIAMETER

- Regular, high tensile and stainless steels
- Heavy, regular, full, half, jam, sleeve, specials, etc.
- Modern machining and heat treating facilities
- Complete testing equipment
- Adequate steel stocks assure prompt delivery



## Joseph DYSON & SONS, INC.

5125 St. Clair Avenue, Cleveland 3, Ohio, Telephone: HEnderson 1-6157

SEND FOR THE DYSON LARGE NUT CATALOG: 36 page catalog contain dimensions, specifications and prices on Dyson large forged nuts, plus data on large eye bars, bolts and studs.

Our Specialty LARGE NUTS . . . BOLTS . . . STUDS . . . EYE BARS



**want  
better finishes?**

When it comes to plastics parts, Chicago Molded can solve your finishing problems. After we've made the part, we can also meet coloring specs, handle metal inserting, provide metallizing . . . and lots more. In addition, you'll find answers to your cost problems, delivery schedules, size and shape worries. Don't be photoed out. Contact:

**CHICAGO MOLDED  
PRODUCTS CORPORATION**  
1025 N. Kolmar Avenue  
Chicago 51, Illinois  
Phone Dickens 2-9000

For More Information Write No. 278 on Inquiry Card—Page 32

PURCHASING

# the extra advantages of



## motorpump versatility

EVERY TIME YOU SPECIFY an Ingersoll-Rand Motorpump you're helping to insure profitable production. Dependable pumping efficiency is designed into Motorpumps right from the start. And special features engineered by Ingersoll-Rand mean year-after-year operation at minimum costs.

You can be sure there is an I-R Motorpump to solve your particular pumping problem, because Motorpumps are available in the widest range of sizes and types. You get delivery from 5 to 2800 gallons per minute, with heads up to 650 ft., horsepower range from 1/4 through 75.

Get the full story on how I-R Motorpumps can give you easier installation and trouble-free performance. Write today for latest catalog.

**Ingersoll-Rand**

11 Broadway, New York 4, N. Y.

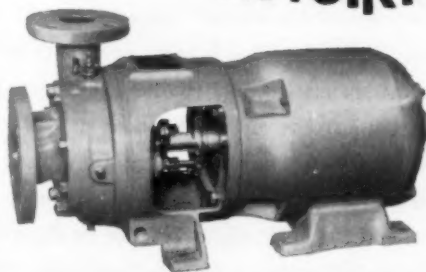


### OPERATES IN ANY POSITION

The I-R Motorpump gives you rapid, easy installation . . . they operate equally well in any position and require no baseplate or mounting arrangement. Discharge can be rotated to suit piping.

**Ingersoll-Rand**

**MOTORPUMP**



9-851



Studebaker Scotsman Pickup

## DISCOVER JUST HOW MUCH THESE

THE SCOTSMAN HAS THE LOWEST PRICE TAG OF ANY FULL-SIZED TRUCK IN AMERICA! Initial price is just the beginning of your savings. The matchless performance of today's most efficient L-Head "6" or heavy-duty V-8 engines continues to cut your operating costs, day in, day out. ■ The Scotsman not only saves money; it also increases payload. It gives you the widest clear-floor pickup box of any truck with no wheel wells to get in the way. Moreover, its double thick steel sides and ribbed steel floor make it the strongest box obtainable. The Scotsman is also available in a stake body model, equipped with steel rub rail, uprights and pockets. Stake racks go on and off effortlessly. Functional in design, the Scotsman assures low maintenance and keeps downtime to a minimum. ■ STUDEBAKER "HAUL OF FAME" TRUCKS—famed for ruggedness, reliability and remarkably low-cost operation (5,000 lbs. to 19,000 lbs. GVW). You get 210 h.p.—225 with 4-barrel carburetor option. You can team this efficient power with either standard three-speed or optional overdrive, 4-speed synchromesh or automatic transmission, and you have mile-by-mile operating thrift that pays off in greater profit. And, you can get power brakes that increase your safety under all load conditions. ■ Need high torque power that can handle a really big payload at low cost per mile? Studebaker Heavy-Duty huskies (available to meet your individual body requirements) give you that extra hustle over the hills, faster acceleration when you need it most. They offer you many premium features for maximum performance and durability. Highest section-modulus frame, for example...truck or tractor versions in wheel-bases up to 195"...exclusive Hill-Holder, a famous Studebaker "first" at moderate extra cost...and cab driving luxury that pays off in greater comfort, less driver fatigue and far safer hauling.



¾ ton Studebaker Service Stake

Studebaker Service Panel Wagon

Utility Service Sedan—2 or 4 door sedan

2 ton tractor with Van Trailer

# STUDEBAKER VEHICLES SAVE YOU

VERSATILE STUDEBAKER PANEL WAGON... It's a delivery truck... a promotional vehicle... or a pleasure car. You can change the personality of this car with just a twist of the wrist. With advertising panels in place, it carries your product or company name as it performs its duties as a delivery or promotional vehicle. Remove the panels, and you have a smart Lark Station Wagon. Economical to operate, it delivers peak performance on regular gas. To add even greater versatility to the Panel Wagon, it can be equipped with handy tool racks, thereby increasing efficiency of home-servicing operations. The Utility Sedan is an ideal home service vehicle. It gives you a spacious flat cargo area behind the front seat—convenient for carrying bulky merchandise or extra equipment. And for your salesmen: Don't overlook the 2- or 4-door Lark sedan as a salesman's car. Extremely economical to operate, it delivers peak performance on regular gas. It is the lowest priced full six passenger sedan. Its smart styling says nice things about your company.



## STUDEBAKER

Without obligating myself, I'd like to learn more about Studebaker Vehicles.

MR. AL FITZPATRICK, Manager, Fleet Sales  
STUDEBAKER-PACKARD CORP./Dept. PM-11, South Bend 27, Indiana

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

ZONE \_\_\_\_\_

STATE \_\_\_\_\_

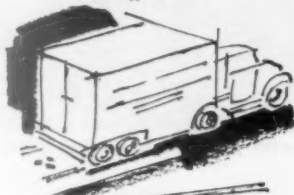
# LOOK WHAT HAPPENS

when you  
*Call Cambridge*  
for  
**INDUSTRIAL  
WIRE CLOTH  
AND SCREEN**

## Bulk or Fabricated Parts



**INQUIRIES ARE ANSWERED PROMPTLY—**  
Whenever you call or write for information on prices, availabilities or service, you get a prompt reply.



**DELIVERIES ARE MADE ON TIME—**  
Orders for the most frequently used types of wire cloth are promptly filled. If we can't supply what you want from our complete stock, we'll schedule our looms to get it to you as soon as possible.



**INSTALLATIONS ARE CHECKED—**At Cambridge, orders aren't filled and forgotten. Our own sales engineers follow up your order to make sure our product is giving you the best possible service.

**QUALITY, OF COURSE—**Individual loom operation and countless checks on mesh size and mesh count assure you of highest quality wire cloth when you specify Cambridge.

Let us quote on your bulk or fabricated wire cloth needs. Samples for inspection or test purposes are available upon request. Call your Cambridge **FIELD ENGINEER**. He's listed in the phone book under "Wire Cloth." Or, write direct for **FREE 94-PAGE CATALOG** and stock list giving full range of wire cloth available. Describes fabrication facilities and gives useful metallurgical data.



**The Cambridge Wire Cloth Co.**

WIRE  
CLOTH

METAL  
CONVEYOR  
BELTS

SPECIAL  
METAL  
FABRICATIONS

Department AK,  
Cambridge 11,  
Maryland

OFFICES IN PRINCIPAL INDUSTRIAL CITIES



## News

### Companies Expect 28% Sales Gain By 1965

Eight out of ten companies expect their sales to increase by a median of 28% by 1965. Twelve years from now, many of these same firms predict that their volume will be 100% higher.

These findings were obtained through a survey by Dun & Bradstreet of representative corporations throughout the United States. The companies made their predictions on the basis of long-range sales forecasts.

Because of the fast growth of particular age groups, income classes, and geographic areas, American industry hopes to produce an unprecedented market of 193 million customers by 1965. According to the poll, industry is already 1) gearing up to meet the demands of these potential customers and 2) taking steps to meet the accompanying problems of geographical shifts and changing channels of distribution.

The majority of the 66 companies surveyed plan at least five years ahead. And roughly 65% of the respondents envision changes in the distribution of their products by 1965.

These corporations are moving in different ways to get the jump on competition, says D&B. Some of these are: following potential customers to the booming South and West; moving into new lines; and manufacturing a broader line of products.

Among the participating companies in the survey were Crown Cork and Seal Co., Westinghouse Electric Co., Aluminum Company of America, National Gypsum Co., Borden Company, Underwood Corporation, and Standard Oil Company of California.

**FOR MORE INFORMATION  
ON PRODUCTS  
IN THIS ISSUE  
USE INQUIRY CARD  
PAGE 32**

IF ALL THE DELIVERY TRUCKS  
OF ALL THE STEEL SERVICE CENTERS  
WERE PLACED END TO END,  
TRAFFIC WOULD BE TIED UP FOR MONTHS!

BUT, FORTUNATELY, THEY'RE NOT END TO END ...  
THEY'RE BUSY THROUGHOUT THE COUNTRY  
DELIVERING STEEL FAST.

SPEEDY DELIVERY IS JUST ONE OF THE MANY SERVICES  
OF YOUR LOCAL STEEL SERVICE CENTER!

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

Bethlehem Pacific Coast Steel Corporation,  
San Francisco

**BETHLEHEM STEEL**





## WHAT'S MAKING NEWS?

Currently there's an abundance of news about budgets—operating budgets, marketing budgets, plant expansion budgets. But what about the "New Idea" budget? The productive executive finds he must keep abreast of new products, new applications, new processes. Finding the time is often difficult. Below are brief, informative accounts of timely events in the vital field of industrial chemistry where rapid change is commonplace. These accounts are written for fast appraisal by busy readers.

NUMBER

5

You may wish to check certain items in this advertisement and forward to those concerned in your company.

Route to:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## CHEMICAL "STOVE" CURTAILS HIGH HEAT COSTS

Modern industry uses heat at high temperatures to process everything from apple butter to zirconium. Direct fire is economical, but seldom safe; and always hard to control. Crushing pressures rule out steam for extra-high temperatures. Dowtherm® A offers none of these disadvantages, but still does the job at a figure that warms a cost accountant's heart.

The potato chip processor had a recurring nightmare in which people opened his potato chip bags and found raw or burnt potatoes instead of the evenly cooked chips that should have been there. It didn't take a psychiatrist

to figure out that the dreams were caused by problems the man faced each day in his plant. These problems had to do with getting an exact amount of heat to an exact place in order to maintain cooking uniformity. His equipment, which used direct fire, was constantly needing an adjustment here and a readjustment there to maintain the proper heat relationship.

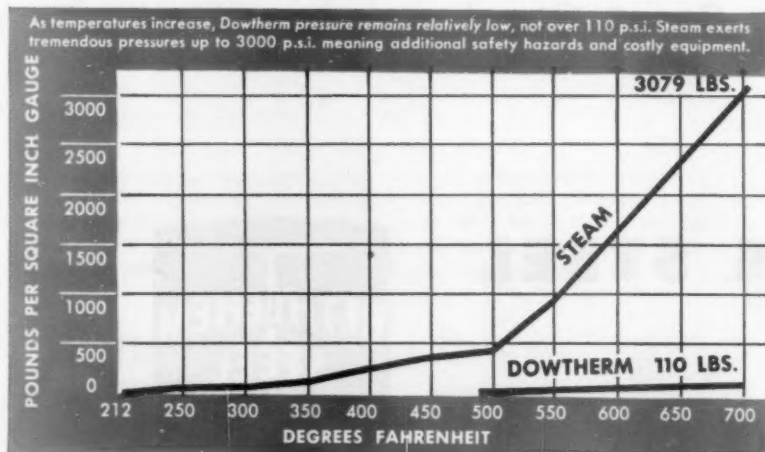
**Lower costs, increased safety.** The nightmares ended abruptly not long after a new system was installed utilizing liquid Dowtherm A as the heat transfer medium. Dowtherm not only provided the pinpoint heat control that direct fire couldn't, but it lowered fuel costs and reduced safety hazards as well. That was several years ago. Today, the box score for his system

using Dowtherm still shows no forced shutdowns due to temperature difficulties and very little maintenance.

This case is far from an isolated one. Manufacturers and processors in all fields of industry put the benefits of Dowtherm to good use whenever they cook, distill, treat, harden, or dry. There's a mountain of technical data showing why Dowtherm has such wide and useful application, but an easier explanation is that every one of its many advantages springs from two basic characteristics: (1) Dowtherm has a super-high heat stability in the 350°F. to 750°F. temperature range permitting highly accurate heat control. (2) It transfers heat at high temperatures with much less pressure than does steam.

**Lighter equipment.** At 700°F., for example, steam pushes out with 3,000 lbs. of pressure against every straining square inch of equipment. Dowtherm at the same temperature exerts a pressure of only 110 lbs. per square inch. This means heavy equipment isn't needed—brings welcome savings on original equipment, maintenance and replacements.

Although changeover to Dowtherm usually requires new or modified equipment, most firms find it well worth the doing. A paint and varnish manufacturer who previously used direct fire to brew his varnishes reports his new installation for Dowtherm will be paid for in five years by savings on fire insurance premiums alone! A food processor estimates fuel savings will amortize his investment in new equipment



in just three years. The chemical, petroleum, food, textile, paint and varnish, metal bonding, plastics and rubber industries testify to similar savings.

**New jobs for Dowtherm.** Special Dowtherm products have been recently developed for tasks outside the realm of process equipment. Dowtherm SR-1 is an economical agent for thermal snow and ice removal by sub-surface systems such as those used on loading docks, parking areas, and around toll plazas. Dowtherm 209 is an excellent freeze point depressant for ebullient cooled engines, such as stationary industrial gasoline engines, and permits use of waste heat.

#### CARPETS GET BETTER BACKING BY GUM

Methocel®, Dow's versatile synthetic gum, is currently busy with industrial tasks ranging from ceramics to cosmetics and from seed to soap. It is extensively used as a thickener for latex in the backings of rugs and carpeting. The fact that it is both water soluble and nonionic makes it a useful tool in the food industry for batters, fillings and flavors. And these same highly beneficial properties make Methocel welcome in the drug, paint, leather and paper industries as well.

Recently published Methocel information discusses these uses and introduces two new Methocel types with viscosities up to 15,000 cps. Copies are available on request.

★ ★ ★ ★

Perhaps one of the many specialized Dow chemicals can help you improve a product or speed a process. Detailed information about the chemicals discussed in this advertisement will be sent on request. Write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Chemicals Sales Department 854D.

#### Dow Chemicals Basic to Industry

Glycols, Glycol Ethers  
Amines and Alkylene Oxides  
Benzene Derivatives  
Inorganic Chlorides  
Alkalies and Halogens  
Solvents • Germicides  
Fungicides • Herbicides  
Fumigants  
Hundreds of other Chemicals  
Plastics • Magnesium

THE DOW CHEMICAL COMPANY  
MIDLAND, MICHIGAN



#### ION EXCHANGE: YOU PROFIT ON AN EVEN TRADE

The simple concept of "puttin' one in and takin' one out" has taken on a new significance in many fields of industry. Chemists and metallurgists have found they can improve products or remove impurities by substituting certain ions for an equal number of different ions. This process is called conversion by ion exchange, and it has a number of widely diversified applications.

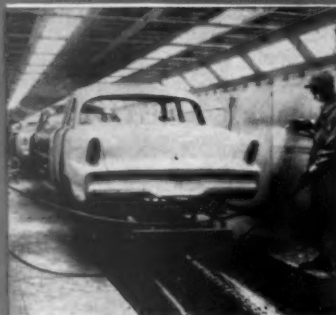
**Prevents blood clots.** For example, conversion does useful jobs in the home, hospital and factory. In the home, it exchanges "hard-water" ions

for "soft-water" ions. In hospitals, it exchanges sodium for calcium in blood taken for transfusion purposes. Conversion prevents clotting because calcium must be present for blood to clot. In the factory, conversion takes place with different chemical ions in the production of pharmaceuticals, thiamine, penicillin and colloidal silica for waxes and polishes.

Conversion is one of five different ways in which modern industry uses the highly versatile ion exchange process. Concentration, catalysis, fractionation and purification are the other four. Dowex® resins, Dow's brand of ion exchange beads, are often used as the exchange medium.

#### Other Dow chemicals in the

#### NEWS SPOTLIGHT



##### DOWANOL®

Lacquers keep that new look longer because these Dow solvents control evaporation to inhibit peeling and "blushing." Write for information on letterhead.



##### METHYLENE CHLORIDE

Active ingredient in the better paint removers. Lifts old paint off any surface quick as a wink without the traditional fire hazard. Does an excellent job on metal or wood.

##### BROMINE

Dow's first product, marketed in 1897. Great granddaddy of hundreds of modern Dow chemicals that serve every industrial and scientific field.



##### ANTIFREEZE

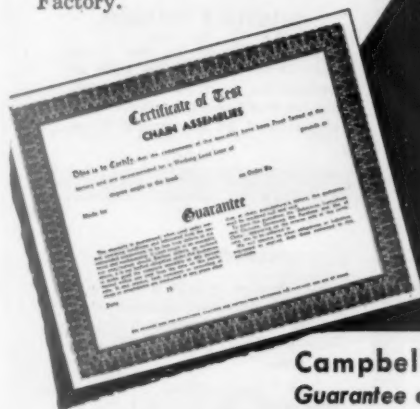
Dow ethylene glycol plus special inhibitors make up a large share of the world's all-winter antifreeze. Dow produces packages for leading firms.



# Campbell "Customized" Sling Chains

## PUT THE ASSEMBLY YOU NEED "YESTERDAY" ON THE JOB TODAY!

Now, the new Campbell "Customized" Sling Chain Assembly Program gives you sling chains as you want them . . . when you want them. Here's how this fast, flexible service works for you. You can: a) Maintain your own stock of Campbell component parts; and assemble slings right on-the-job; b) get immediate delivery on assemblies and components from your Campbell Distributor; c) get immediate shipment ordered through your Campbell Distributor on slings made-up at the nearest Campbell Warehouse or Factory.



### Campbell Certificate of Test: Guarantee of Performance

Campbell Certificates of Test protect you both for Campbell component parts, and the complete "Customized" Assemblies you get from your Campbell Chain Distributor or Warehouse. Call your Distributor for details on how the Program meets the requirements of your operation.

**SEND TODAY** for your free copy of  
Campbell's "Customized" Sling Chain Brochure No. CSA-1.

**CAMPBELL  
CHAIN**

**CAMPBELL CHAIN Company**

York, Pa.—W. Burlington, Iowa  
E. Cambridge, Mass.—Seattle, Wash.—Portland, Ore.  
Sacramento, San Francisco, Los Angeles, Calif.

For More Information Write No. 284 on Inquiry Card—Page 32

## News

### Bill Proposed to Simplify Gov't Buying

A proposal to simplify military procurement policies is now being prepared for submission to Congress next session.

One phase of the bill of great interest to purchasing agents calls for putting much more reliance on the "weapons system" type of procurement. Under this system, the entire job of producing a weapon is awarded to a single company—a prime contractor. The purchasing agent for this prime contractor then selects the subcontractors, although he must conform to government procedures designed to assure the maximum use of small business.

Presently, under 50% of the dollar volume of military contracts comes under the "weapons system" method. The rest of the contractors are issued prime contracts for separate parts of the weapons.

The chief beneficiaries under this system would be the military—which could get its major weapons into production much faster—and the taxpayers—who could probably save a considerable amount of money.

However, if the bill is enacted, many businesses would also benefit. When a single company has responsibility for producing all elements of an effective weapon, it can generally proceed more efficiently and quickly than if several companies had equal responsibility.

## Book Reviews

### Linear Programming: Fundamentals and Applications

By Robert O. Ferguson and  
Lauren F. Sargent  
McGraw-Hill Book Co. \$10.00

Linear programming is undoubtedly one of the most promising tools of scientific management yet developed. Its principles can be applied to most purchasing departments. In this book—written for managers in industry—the authors explain the subject in a

(Please turn to page 192)



An Economy Man can show you how to seal practically any shape corrugated container better and faster with Bostitch staplers and staples.

He'll show you the versatility of stapling. Bostitch equipment can frequently be adapted for use with unusual shapes or constructions. (One Economy Man helped a manufacturer cut costs with stapled cartons for 14-foot boats!)

He'll show you how stapling can make your shipping cartons stronger, if you now use tape or glue. He can help

you overcome problems of humidity, temperature, perishable contents, the need to open and reseal and many others.

There are big savings buried in many shipping rooms. Economy Men are trained to find savings in time, labor and materials. They'll show how these become additional profit when you switch to Bostitch stapling.

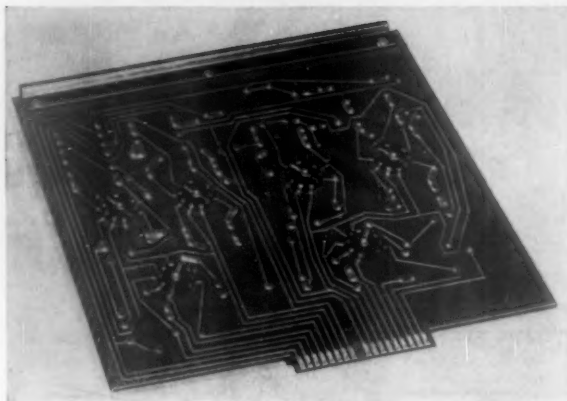
350 Bostitch Economy Men work out of 123 U. S. and Canadian cities. Call one in to talk over your container fastening. He's listed under "Bostitch" in your phone book.

*Fasten it better and faster with*

**BOSTITCH®**  
STAPLERS AND STAPLES

731 BRIGGS DRIVE, EAST GREENWICH, RHODE ISLAND

# CDF PLASTICS AND FIBRE



Heart of the best printed circuits—

## CDF Di-Clad<sup>®</sup> LAMINATES

Printed-circuit dependability begins at the base, and that's where CDF excels. Only CDF offers the combination of Teflon<sup>®</sup> resin and glass fabric cloth for use under sustained temperatures of 180°C. In addition, CDF offers a full range of Di-Clad laminates to meet every known demand of printed circuitry. High foil-bond strengths withstand soldering heats, reduce assembly rejects. Full line of Di-Clad grades — glass fabric and paper-base — with Teflon<sup>®</sup>, epoxy, and phenolic resins. Assembly costs go down when the job is done on CDF Di-Clads! Write for CDF Di-Clad Folder DC-58.

\*duPont trademark for its tetrafluoroethylene resin

## CDF PRODUCTS OF TEFLON

CDF produces an unequalled range of electromechanical parts of Teflon<sup>®</sup> — such as small- and large-diameter thin-wall tubing, glass-fabric laminates, flexible insulating tapes, sheets, rods, tubes, and finished parts. Now also available: cementable Teflon in supported and unsupported forms; can be cemented to itself and to most other materials with commercial adhesives. If you have a potential use for a product made from unsupported or reinforced Teflon — from tapes to high-heat-resistant printed-circuit laminates — your CDF sales engineer is the man to call. Meanwhile, write for the new CDF Teflon Folders.

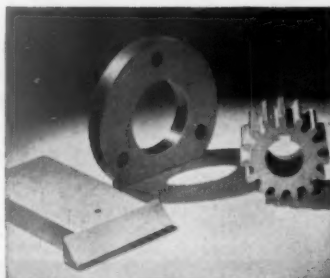
\*duPont trademark for its tetrafluoroethylene resin



## CDF HIGH-HEAT ELECTRICAL TAPES

Flexible insulating tapes for hand or automatic winding, made of glass-supported silicone rubber, silicone varnish, Micabond, with and without backings; and unsupported and glass-supported Teflon<sup>®</sup>. Color identification — CDF tapes of Teflon are made in the standard identifying colors. Call your CDF sales engineer, or write for test samples.

\*duPont trademark for its tetrafluoroethylene resin



## DIAMOND VULCANIZED<sup>®</sup> FIBRE

### keeps costs down

Known for over sixty years as the standard of quality in fibre, Diamond<sup>®</sup> Vulcanized Fibre is made in many grades (bone, fish-paper, trunk, commercial, built-up) and is available in sheets, rods, tubes, strips, rolls, fabricated parts, and formed specialties. Write for Catalog DVF-58.

**LOW-COST VULCOID is Resin-impregnated Vulcanized Fibre.** Vulcoid (made only by CDF) is an intermediate insulation material. It combines the desirable arc-resistance and mechanical properties of vulcanized fibre with many of the good qualities of a phenolic laminate. UL-approved as Class A insulation in electrical equipment. Bearing applications requiring high precision have been successful with Vulcoid. Write for Bulletin V-58.



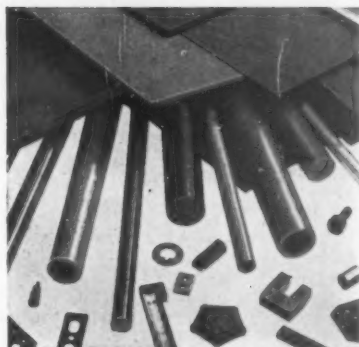
## CDF CELORON<sup>®</sup> MOLDED PRODUCTS

Celoron is a molded-macerated and/or combination laminated base bonded with phenolic resins. High strength, long life, and low cost are the characteristics of molded electrical or mechanical parts made from CDF Celoron<sup>®</sup>. Its good electrical properties make Celoron an ideal molded insulator, while its high mechanical strength makes it an excellent material for gears, couplings, intricate loom parts, etc. Write for CDF Catalog C-58, or contact your nearest CDF sales engineer.

# PURCHASING NEWS



## CDF DILECTO® LAMINATED PLASTICS



### for electrical and mechanical applications

DILECTO®, made in scores of grades, means high-quality laminated plastics made for rigorous duty in electrical, electronic, and mechanical equipment. Characteristics vary with the grade, so get the expert assistance of your CDF sales engineer.

#### RESINS AVAILABLE IN DILECTO:

Phenolic  
Heat-resistant Phenolic  
Silicone

Epoxy  
Melamine

Polyester  
Teflon\*

#### BASES FOR DILECTO:

Glass Fabric  
Nylon Fabric  
Asbestos Fabric  
Cotton Fabric

Glass Mat  
Felted Asbestos  
Non-woven Cotton Mat  
Paper (either cellulose or asbestos)

CDF gives fast technical and delivery service on sheets, tubes, rods, or complete fabricated parts of Dilecto plastics. Write for Catalog D-55-C.

\*duPont trademark for its tetrafluoroethylene resin

## For a better motor or generator —



### CDF MICABOND® INSULATING PARTS

CDF mica V-rings and slot liners insulate America's best-selling motors and generators. Finest-quality mica splittings insure highest heat-resistance and insulation under severe operating conditions.

Forms of Micabond® available: Sheets; Tubing; Tapes (with backings of cotton, silk, paper, woven glass, and Mylar polyester film); Fabricated Parts of various shapes such as Mica segments. CDF supplies and fabricates Micabond to your strictest specifications — on time and at low cost. Call your CDF sales engineer or write for samples of Micabond and Catalog M-58.

†duPont trademark



### PLASTICS FABRICATION BY CDF

## SAVES YOU TIME, MONEY, WORRY

Let CDF's well-equipped machine shops assume the complete responsibility for delivery of your fabricated parts as specified and on time. No time is lost at CDF between raw-material production and final fabrication. When you let CDF do it for you, there's no problem of shortages, rejects, waste. Undivided responsibility pays off for you!

### THERE'S A CDF SALES OFFICE NEAR YOU

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110 95th Street, N.  
BOSTON SALES OFFICE Granite 2-2150  
1245 Hancock St., Quincy 69, Mass.  
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495 Ellicott Square Building  
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1201 Palmolive Building  
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550 Leader Building  
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201 Offcenter Bldg.  
EXPORT DEPARTMENT: BRIDGEPORT PENNSYLVANIA, U. S. A.

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15 Harding St., Wethersfield 9, Conn.  
HOUSTON 27, TEXAS Jackson 3-9254  
3302 Mercer Street  
INDIANAPOLIS 5, IND. Walnut 5-9883  
709 East 38th St.  
KANSAS CITY 11, MO. Logan 1-6014  
406 West 34th St.  
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Inglewood 4, Calif.  
MILWAUKEE 19, WIS. Lincoln 1-7660  
6108 W. Lincoln Ave.

MINNEAPOLIS 2, MINN. Federal 3-6666  
610 Plymouth Bldg.  
NEW YORK  
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Bridgeport, Pa. Broadway 5-0800  
P. O. Box 1587 Alpine 8-7893  
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1714 First Ave. S.  
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209 S. W. First Ave.  
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320 East 3rd Street

#### Canadian Representative DIAMOND STATE FIBRE CO. OF CANADA, LTD.

46 Hollinger Rd., Toronto 13, Ontario, Can.



## CONTINENTAL-DIAMOND FIBRE

A SUBSIDIARY OF THE ~~Buhl~~ COMPANY • NEWARK 41, DELAWARE

For More Information Write No. 286 on Inquiry Card—Page 32

... now your distributor can supply **both**

# Bunting®

## CAST OR SINTERED BRONZE

*Fast pick-up...*

Stock sizes of Bunting Cast Bronze and Sintered Bronze Bearings and Bars are available everywhere in America. Every one is a precision product of scientifically exact manufacturing methods, meeting on every point the highest standards of quality as defined by modern mechanical engineering and metallurgy.



FIRST AWARD  
For Advertising Excellence  
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... buy Bunting Bearings  
from your Bunting Distributor



Your Bunting distributor is listed in the classified section of your telephone directory usually under Bars — Bronze, and Bearings — Bronze. Two Bunting factories and eleven Bunting Branch Warehouses expedite distribution in all areas. Ask your local Bunting distributor or write for catalogs.

# Bunting®

BUSHINGS, BEARINGS, BARS, AND SPECIAL PARTS  
OF CAST BRONZE AND POWDERED METAL

THE BUNTING BRASS AND BRONZE COMPANY • TOLEDO 1, OHIO • BRANCHES IN PRINCIPAL CITIES

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Ask for  
Catalog No. 58—Cast Bronze and Sintered  
Bronze Bearings and Bars  
Catalog No. 258—Electric Motor Bearings  
and Cast Bronze Bars

## Book Reviews

(Continued from page 188)

manner such that one does not have to have a degree in mathematics to read and understand the book. There are four sections in the book: Introduction, Methods, Application, and Technical Appendix. Each can be read independently. This makes the book even more useful as a reference.

### Antitrust Policies

By Simon H. Whitney  
The Twentieth Century Fund  
(2 volumes) \$10.00

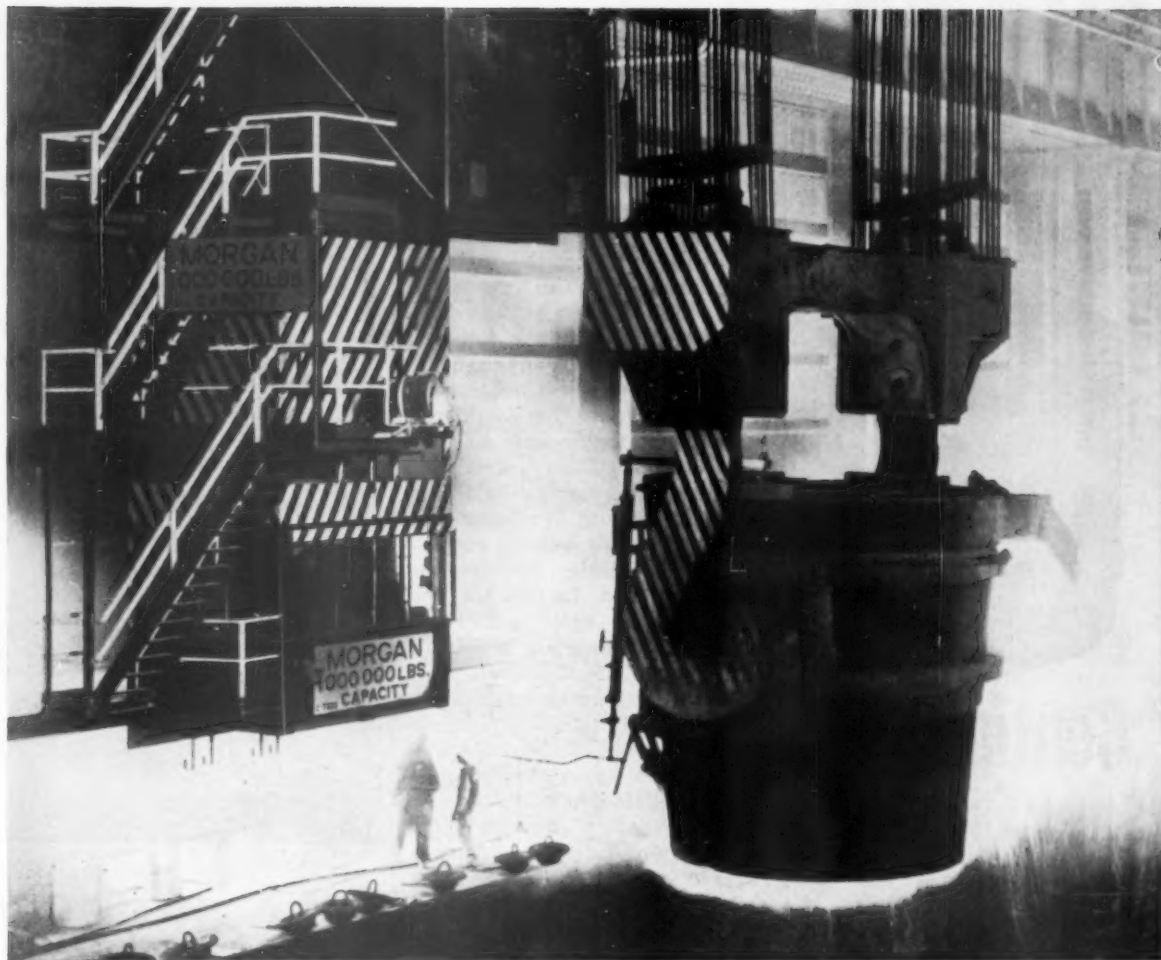
This is one of the best comprehensive (and is also the most up-to-date) studies of the anti-trust laws and their enforcement that has yet been written. Anti-trust legislation in this country goes back to the Sherman Act of 1890. Since then there have been several amendments, new laws and numerous court decisions to guide both business and government. Purchasing executives have a particular interest in antitrust legislation and its effectiveness in preserving competition since, more than any other business group, purchasing has a vested interest in preservation of free competition and prevention of collusion by suppliers.

### Industrial Storeskeeping Manual

By Benjamin Melnitsky  
Chilton Co. \$6.00

This is a down-to-earth guide to storeskeeping methods. It is based on practices of a number of leading companies. All phases of storeskeeping are covered including standards, record layout, handling and location of stock, physical inventory, etc.

With a growing trend in industry toward a materials management type of organization, purchasing men are becoming more and more conscious of the need for a more thorough knowledge of functions related to purchasing such as storekeeping. This book, consequently, is an extremely timely one for the industrial purchasing agent.



Repeated million-pound loads in the intense heat from 375 tons of molten steel, cause no spalling or deformation of Rollway Bearings.

## 1,122,000 Pounds Ride on 68 Rollway Bearings

One of the largest in the world, this 500-ton Morgan-built ladle crane is Rollway equipped in many positions.

Sixty-eight maximum-type, solid-cylindrical bearings—mounted without inner races—lift and lower the 1,122,000-pound weight of the lifting beam, ladle hooks, ladle and white-hot steel.

Rollway Tru-Rol® type bearings are used in the two General Electric 360 HP—MD-620 Hoist motors which lift the weight of the ladle and its molten metal content.

The maximum-type bearings in the hoisting sheaves are mounted directly on the shaft without inner races, which greatly simplifies assembly for applications of this size.

Thrust bearings in the 25-ton and 75-ton auxiliary crane hooks are standard Rollway precision types with broad-area contact between



Sheaves ready for assembly on shaft and installation in lifting beam.

rollers and plates to prevent Brinelling and assure freedom of rotation under the heaviest loads.

*For bearings that accomplish the extraordinary in an ordinary manner, write, wire or 'phone Rollway Bearing Co., Syracuse 1, N.Y.*

**ROLLWAY®**  
**BEARINGS**

ENGINEERING OFFICES: Syracuse • Boston • Chicago • Detroit • Toronto • Pittsburgh • Cleveland • Seattle • Houston • Philadelphia • Los Angeles • San Francisco

NOVEMBER 24, 1958

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193

# SAFE, SURE SHIPPING!



## Continental Steel Containers

- Positive protection
- Superior lithography
- Fast delivery
- Top quality
- Full line
- Re-usable
- Famous Continental service

Call Continental when you need steel containers. Get top quality plus outstanding Continental service. Engineering and research assistance available to help you solve any packaging problem.



**PERMA-LINED TO PROTECT HARD-TO-HOLD PRODUCTS**

Airless hot sprayed enamel lining assures complete interior coverage, guarantees 100% protection.

**CONTINENTAL CAN COMPANY**

Eastern Division: 100 E. 42nd St., New York 17  
Central Division: 135 So. La Salle St., Chicago 3  
Pacific Division: Russ Building, San Francisco 4

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on Inquiry Card—Page 32

## Breaking Contracts

(Continued from page 88)

the article would have no appreciable market or resale price.

Suppose goods are to be manufactured or procured by the seller for the buyer and the buyer repudiates the contract before time for delivery. Here, the seller is obligated to take all reasonable steps to mitigate the buyer's damages. The Uniform Sales Act provides that "the buyer shall be liable for no greater damages than the seller would have suffered if he did nothing towards carrying out the contract."

A purchasing agent should keep this "seller's duty to mitigate" in mind and act as quickly as possible when a sales contract has to be cancelled. In this way he can, in many cases, materially reduce the damage for which his company will be liable.

Important to purchasing agents, is the type of notice the law requires in order to terminate a contract. The buyer's notice must be a repudiation or countermand. It can not be a request for delay in delivery of the goods, or a mere request for cancellation. The repudiation must be positive and certain. Remember, a request to cancel is not a cancellation.

In computing the damages for the anticipatory breach of sales contracts covering material to be manufactured or procured by the seller, the courts have usually resolved doubts in favor of the buyer. By remembering this a purchasing agent may avoid settling with the seller for higher damages than he is lawfully obligated to pay.

For instance, suppose the contract fixes maximum and minimum limits of quantity, with any amount in excess of the minimum is to be furnished only at the request of the buyer. If the contract is broken before the minimum quantity has been delivered, the computation should be based on the minimum quantity.

Likewise, if different qualities are available, it is assumed that the buyer would select those on which the seller would realize the least profit. If a blanket order contract calls for all of a specific

(Please turn to page 198)

## NEW XTRA-SAFE MODERN-MAGIC CHUCKS & COLLETS



**Solid, one-piece body and shank construction.**

### EXTRA WIDE, NO-PINCH LOCKING RING

New flanged top on the locking ring protects hands from contact with upper retainer spring and spindle. Extra width assures that the lower retainer spring will always be covered, regardless of position. No pinched hands!

### PROTECTED, WIDE FLANGED COLLETS

Guard against injury when handling collets with greasy hands. You can't drop them, and hands won't ride up into the chuck.

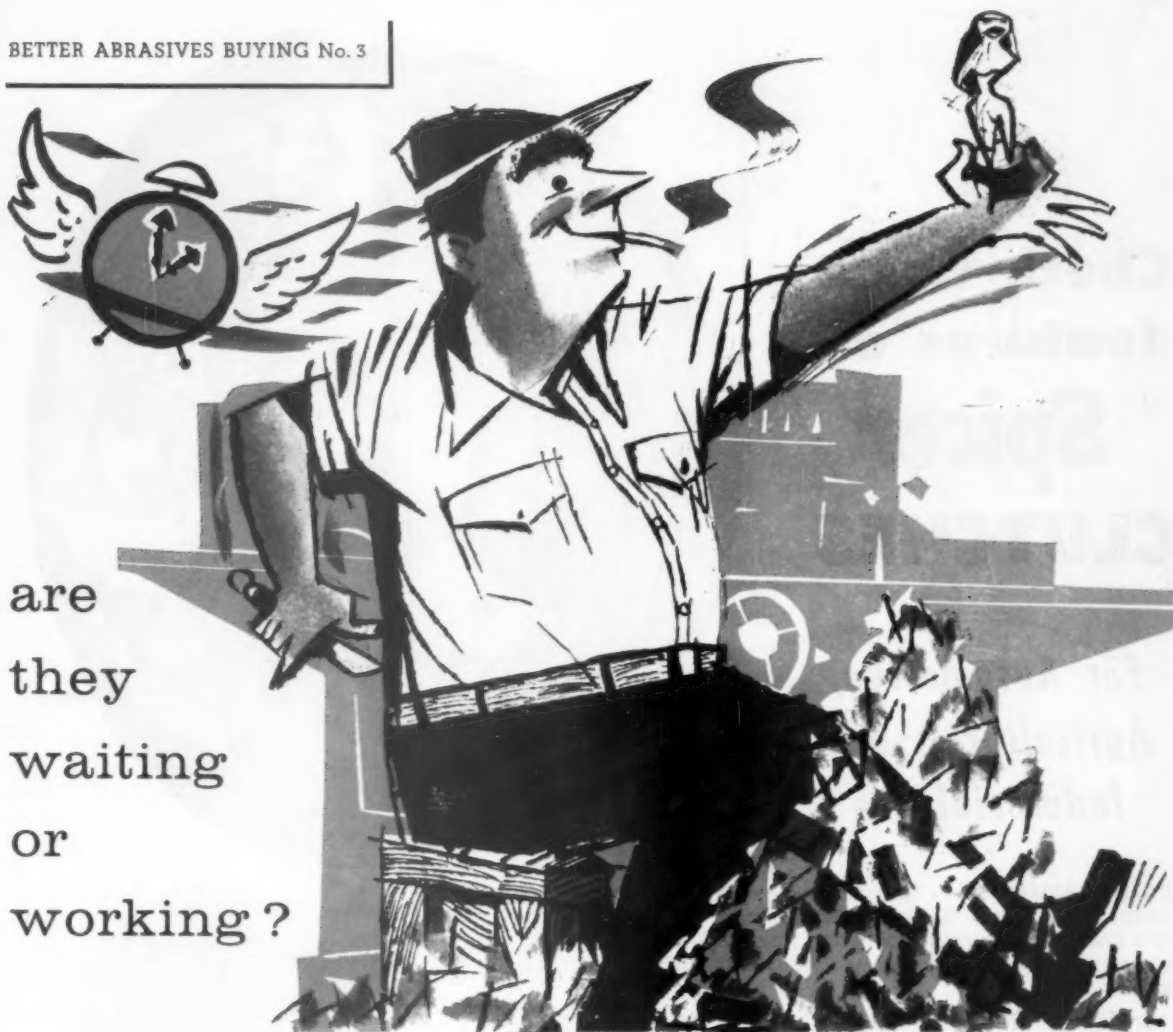
**make live-spindle tool changes "on-the-run"—safely!**

**THREAD TOOL DIVISION  
JONES & LAMSON**

**JONES & LAMSON MACHINE COMPANY**  
540 Clinton St., Springfield, Vt., U.S.A.

For More Information Write No. 290  
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PURCHASING



are  
they  
waiting  
or  
working?

When a machine is shut down while a *special* grinding wheel is being made to order, that part of your plant operation is costing you valuable production man hours. There's seldom any way to short cut the time required to manufacture a *special* wheel. Experience shows that you'll save time and money if you'll specify NATIONAL STANDARD grinding wheels by Carborundum.

Now Carborundum offers you a simplified line of "Job-Engineered" NATIONAL STANDARDS of consistent high quality which will meet practically any job requirement in your plant. No delivery problem. They are "shelf" items—waiting for your order!

NATIONAL STANDARDS by Carborundum have been precision mass-produced to the most rigid specifications, field tested on a wide variety of applications and performance proved in leading metal working plants throughout the country.

On your next grinding wheel order...



specify "Job-Engineered"  
NATIONAL STANDARDS by

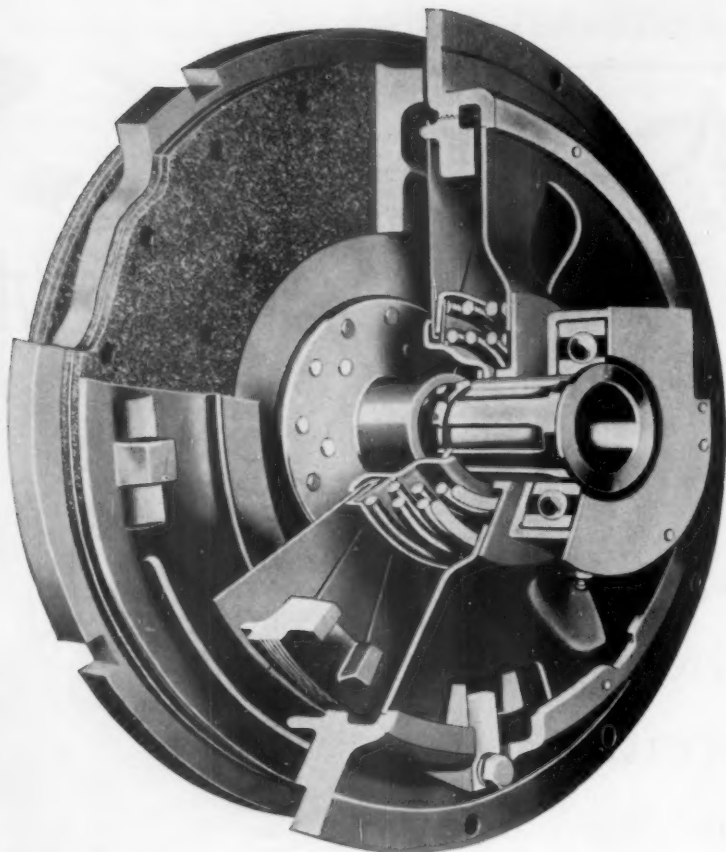
**CARBORUNDUM**  
REGISTERED TRADE MARK

WRITE FOR CATALOG OF NATIONAL STANDARDS, Form A-1489, and prove to yourself that "standards" will solve many of your abrasives problems. Address your request to The Carborundum Company, Dept. P 81-830, Niagara Falls, N. Y.



# Check these features of **Spicer** **CLUTCHES**

*For Automotive,  
Agricultural, and  
Industrial use*



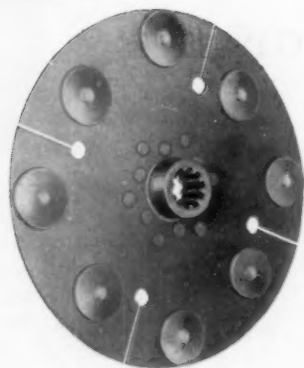
**UNITIZED ASSEMBLY** . . . Spicer Clutches are delivered ready for hook-up to the pedal linkage, complete with bearing, bearing housing and guide. No further engineering or purchasing of additional parts is necessary.

**LIFETIME DURABILITY** . . . Spicer design eliminates contact between the pressure springs and pressure plate — springs won't take a set or lose their pressure due to heat.

**ANTI-FRICTION DESIGN** . . . Reduced friction, due to knife-edge design of the fulcrum points, reduces pedal pressure . . . provides chatter-free operation in both forward and reverse.

**BUILT-IN PARALLELISM** . . . Contact surfaces are permanently and accurately parallel. This feature insures uniform pressure around the pressure plate — regardless of wear — and eliminates the possibility of cocking.

**OTHER SPICER FEATURES** . . . insure smooth pick-up . . . prevent bearing face wear . . . aid fast, easy adjustment. All parts are individually balanced.



**CERAMIC  
TYPE  
FACING**

Latest type ceramic facings offer the following advantages for heavy-duty applications  
• high coefficient of friction • little or no fade • less pedal effort • longer wear due to high heat resistance.

**DANA CORPORATION • Toledo 1, Ohio**

**DANA PRODUCTS Serve Many Fields:**

**AUTOMOTIVE:** Transmissions, Universal Joints, Propeller Shafts, Axles, Powr-Lok Differentials, Torque Converters, Gear Boxes, Power Take-Offs, Power Take-Off Joints, Clutches, Frames, Forgings, Stampings.

**INDUSTRIAL VEHICLES AND EQUIPMENT:** Transmissions, Universal Joints, Propeller Shafts, Axles, Gear Boxes, Clutches, Forgings, Stampings.

**AVIATION:** Universal Joints, Propeller Shafts, Axles, Gears, Forgings, Stampings.

Many of these products manufactured in Canada by Hayes Steel Products Ltd., Merriton, Ont.

**RAILROAD:** Transmissions, Universal Joints, Propeller Shafts, Generator Drives, Rail Car Drives, Pressed Steel Parts, Traction Motor Drives, Forgings, Stampings.

**AGRICULTURE:** Universal Joints, Propeller Shafts, Axles, Power Take-Offs, Power Take-Off Joints, Clutches, Forgings, Stampings.

**MARINE:** Universal Joints, Propeller Shafts, Gear Boxes, Forgings, Stampings.





*"Do I have to see  
all those salesmen  
to get the filters I need?"*

One filter line per salesman—that was his problem. Each one had a good product, but every time he needed a different kind of filter he had to find out who made it. Then he met the Purolator man. What a relief! He learned that Purolator has 2,000 different filters, all in stock—easily available and all from the same source.

Purolator filters everything from coolants to toothpaste. Purolator's line includes micronic paper, metal edge, woven wire, porous metal, wire mesh, copper wool, wire screen, animal

fiber and cloth media. No wonder Purolator can claim to filter any contaminant out of any fuel under any conditions.

More than that, Purolator makes everything, housing and all, in their own plant. By controlling manufacturing from start to finish, they can make sure they're giving you an accurate product at top quality—and at no extra cost.

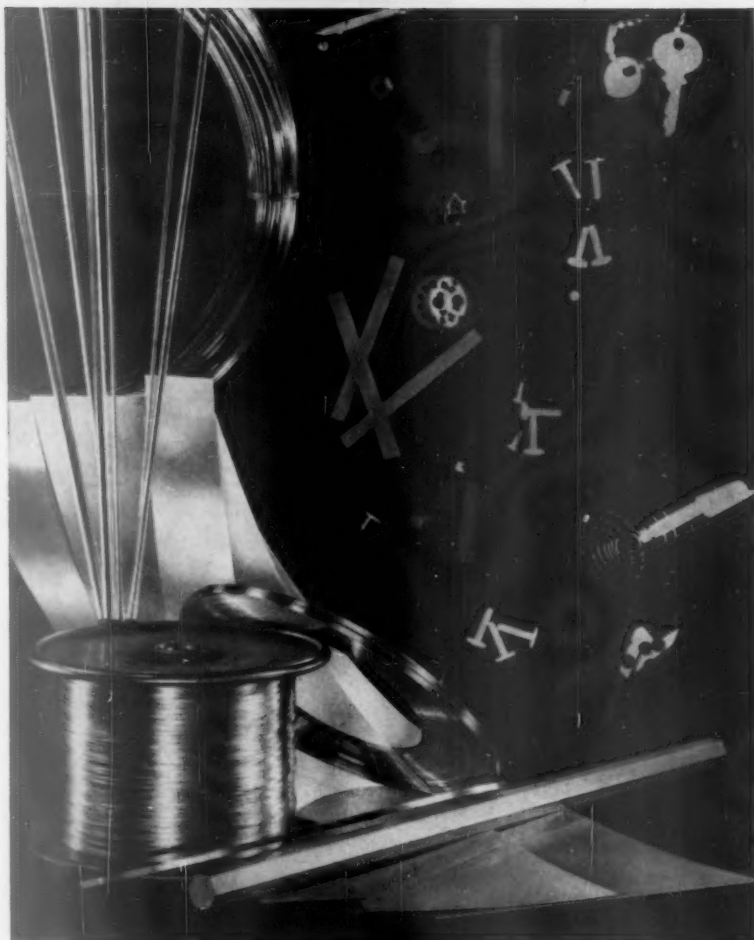
Write to Purolator and they'll tell you the name of the man who can help you with your filtration problem.

*Filtration For Every Known Fluid*

**PUROLATOR**  
PRODUCTS, INC.

RAHWAY, NEW JERSEY AND TORONTO, ONTARIO, CANADA

For More Information Write No. 293 on Inquiry Card—Page 32



## PUT MORE SELL IN YOUR PRODUCT with Riverside-Alloy nickel silver

Riverside-Alloy nickel silver can help you make a more saleable product in two ways. First, by giving it a lustrous, lasting, "clear-through" *outside* beauty that will never wear away. Second, by giving it astonishing *inner strength*, with resistance to wear, corrosion and fatigue.

Riverside-Alloy offers nickel silver in a complete range of alloys, tempers, and anneals that can be soft-soldered, silver brazed, and spot and arc welded with ease.

Let Riverside-Alloy technicians work closely with your engineers to choose just the right alloy for your product and problem from a wide selection of strips, wires, and rods. For more details on applications, and the name of your nearest Riverside-Alloy representative, write, wire, or call collect, *Riverside-Alloy Metal Division, H. K. Porter Company, Inc., Riverside, N.J.*

**H. K. PORTER COMPANY, INC.**  
RIVERSIDE-ALLOY METAL DIVISION

For More Information Write No. 294 on Inquiry Card—Page 32

## Breaking Contracts

(Continued from page 194)

type of goods required by a buyer, but he breaks the contract and buys elsewhere, the damages will be assessed according to only the amounts and quantities so purchased which could have been supplied by the seller.

Ordinarily when a buyer cancels a sales contract he is at fault and must expect to suffer the consequences. However, this rule should not be accepted as inevitable. The law, under certain conditions, justifies the cancellation and removes the liability from the buyer. To maintain an action for damages for the buyer's breach, the seller must show performance of the contract, or an offer to perform, or ability and readiness to perform. If the seller cannot prove that he could have made delivery on time he cannot recover for an anticipatory breach.

The buyer may put up these defenses: the goods were defective; there was a lien on the goods or other defects in the title to the merchandise; the contract was induced by fraud, misrepresentation or undue influence; damages from the breach had been waived by the seller; there was a deficiency in the quantity or quality of the goods; the seller could have had a profit on the goods by selling them at a higher price than the contract price.

Remember that the law established these defenses for the buyer's action in cancelling sales contracts. This may help avoid an expensive settlement with a supplier when cancellation is legally justified.

Quarles has advised us to "use law and physic only in cases of necessity; they that use them otherwise abuse themselves into weak bodies and light purses; they are good remedies, bad recreations, but ruinous habits." This advice is especially applicable to the mutually dependent relationship existing between buyer and seller. The greatest function of law in business always has been, and always will be, is to serve as a guide for the conduct of our affairs and as a basis for the harmonious settlement of our differences.

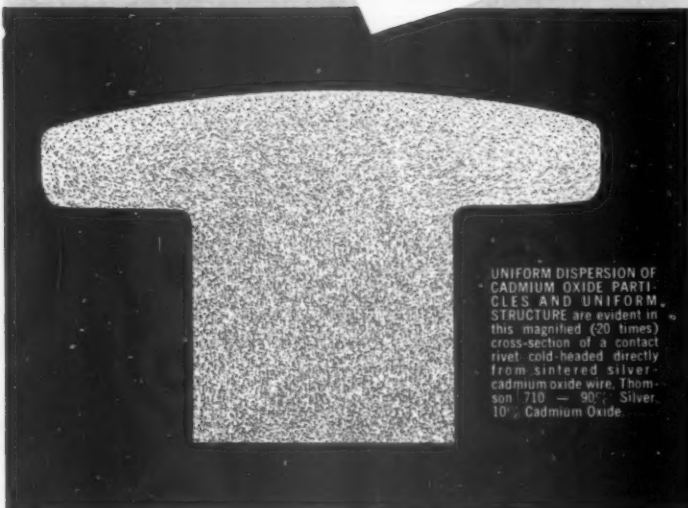
**73 YEARS OF  
HEADING  
EXPERIENCE...**

**+**

**SINTERED SILVER  
CADMIUM OXIDE  
WIRE**

*the  
plus factor  
in*

## **THOMSON "710" CONTACTS**



UNIFORM DISPERSION OF  
CADMIUM OXIDE PARTI-  
CLES AND UNIFORM  
STRUCTURE are evident in  
this magnified (20 times)  
cross-section of a contact  
rivet cold-headed directly  
from sintered silver-  
cadmium oxide wire, Thom-  
son 710 — 90% Silver,  
10% Cadmium Oxide.

Thomson 710 Silver-Cadmium Oxide Heavy Duty Electrical Contacts, cold-headed directly from sintered wire, cost no more than oxidized contacts because of Thomson's special equipment and techniques. Yet, they give you the benefits of:

1. Uniform Dispersion of Cadmium Oxide throughout the silver matrix.
2. Uniform Electrical Conductivity for all parts and all batches.
3. Uniform Ductility which provides reproducible staking and double heading.

Complete Data and Test Samples are available on request.



**JUDSON L.**

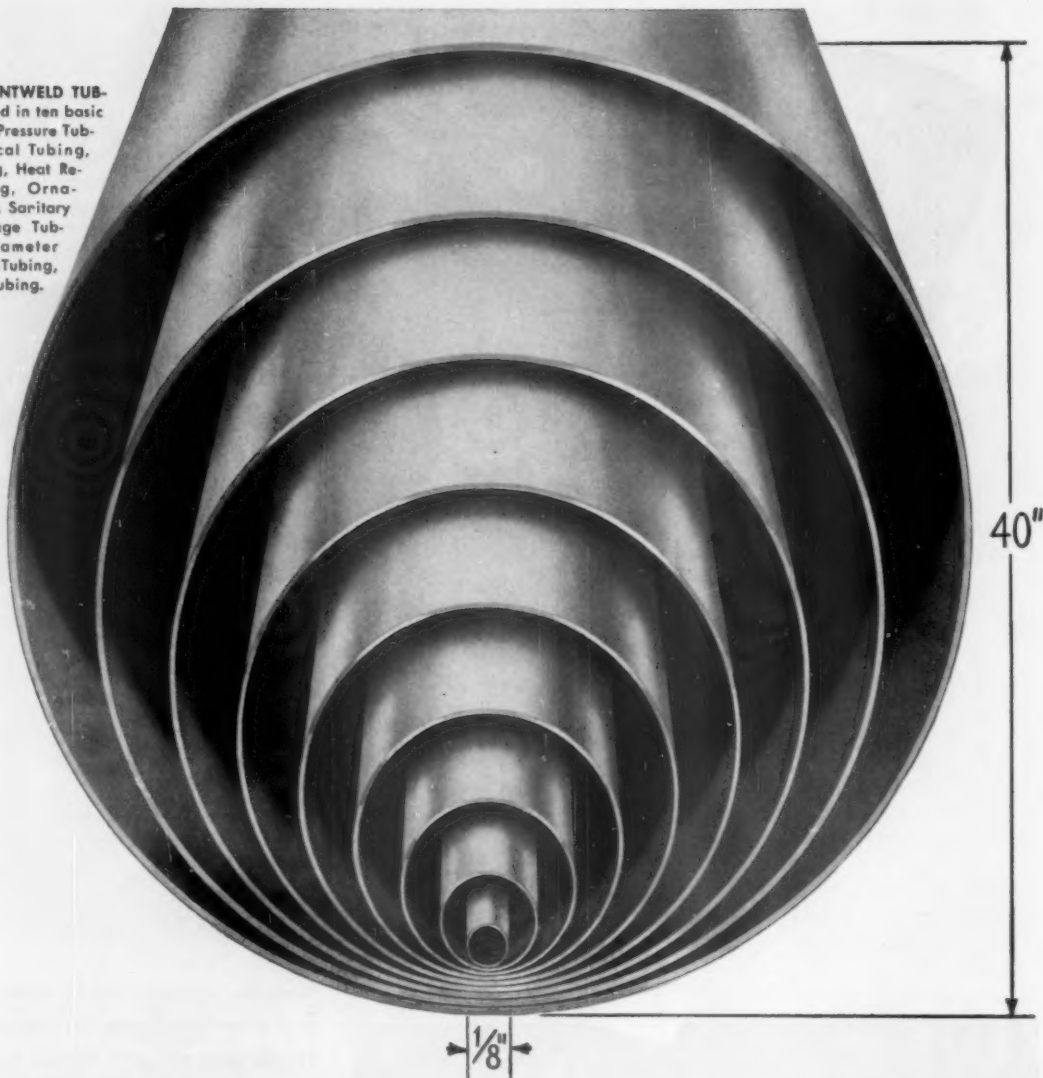
**Electrical Contacts Division**

# **THOMSON**

**Since 1885**

**MFG. CO., WALTHAM 54, MASS.**

CONTOUR TRENTWELD TUBING is furnished in ten basic classifications: Pressure Tubing, Mechanical Tubing, Aircraft Tubing, Heat Resistant Tubing, Ornamental Tubing, Sanitary Tubing, Beverage Tubing, Large Diameter Tubing, Shaped Tubing, and Formed Tubing.



## TRENTWELD tubing is equal in strength and has more uniformity than tubing made by any other method of manufacture

Trent offers tubing in sizes ranging from  $\frac{1}{8}$ " to 40" O.D. and in a wide range of grades. These include: Hastelloy,\* Zircorium, Zircaloy, Titanium and 19-9-DL grades. All are made by an exclusive welding process—Contour Trentweld®—which virtually eliminates the bead. Furthermore, by cold working and annealing after welding, Trent makes the weld equal in strength and corrosion resistance to the parent metal.

To insure that Trentweld tubing

is of the highest quality attainable, a rigorous quality control program is carried out. Samples of each lot are tensile tested. Periodic tests — flattening, reverse bend, flare and flange, coil, and pressure — are conducted. Rigid corrosion tests are made on all lots intended for corrosive applications. When requested, a unique "single-wall" X-ray inspection is made as your final assurance of a sound, uniform product.

Why not take advantage of Trent

quality when you order stainless or high alloy tubing? For further information, write for the Trent tubing handbook, Trent Tube Company, East Troy, Wisconsin.

\*Trademark of Haynes Stellite Co.

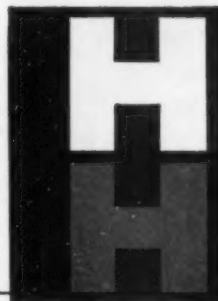


**TRENT  
TUBE  
COMPANY**

Subsidiary of Crucible Steel Company of America  
GENERAL OFFICES: EAST TROY, WISCONSIN  
MILLS: EAST TROY, WIS.; FULLERTON, CALIF.

# HANDY ALLOY DATA SHEET

HANDY & HARMAN  
ENGINEERING DEPARTMENT  
82 FULTON STREET, NEW YORK 38, N. Y.



ALLOY  
LIST

## Handy & Harman Silver Brazing Alloys

...The COMPLETE line that meets all specifications and production needs

Need to join any combinations of metals—ferrous and nonferrous? Investigate the vast number of products, assemblies and parts that are being joined better by silver brazing alloys. Handy & Harman, the Number

One Source of, and Authority On Brazing Alloys and Methods makes—and makes readily available—the following silver brazing alloys:

HANDY & HARMAN SILVER BRAZING ALLOYS								
NAME		SILVER	COPPER	ZINC	OTHER	MELTING POINT °F	FLOW POINT °F	TROY OUNCES PER CU. IN.
EASY-FLO		50%	15½%	16½%	(18% Cd.)	1160	1175	5.00
EASY-FLO #3		50	15½	15½	(16% Cd.)	1170	1270	5.00
EASY-FLO 45		45	15	16	(3% Ni.)	1125	1145	4.92
EASY-FLO 35		35	26	21	(24% Cd.)	1125	1295	4.90
SIL-FOS		15	80	—	(18% Cd.)	1185	1300	4.45
SIL-FOS 5		5	88.75	—	(5% P.)	1185	1300	4.37
					(6.25% P.)			
NEW NAME	FORMER NAME	SILVER	COPPER	ZINC		MELTING POINT °F	FLOW POINT °F	TROY OUNCES PER CU. IN.
BRAZE TEC*	TEC*	5	—	—	(95% Cd.)	640	740	4.60
" 056*	TEC-Z*	5	—	16.6	(78.4% Cd.)	480	600	4.53
" 071	SN #7	7	85	—	( 8% Sn.)	1225	1805	4.82
" TL	TL	9	53	38		1410	1565	4.50
" 202	AT SPECIAL	20	45	35		1315	1500	4.68
" ATT	ATT	20	45	30	( 5% Cd.)	1140	1500	4.64
" NE	NE	25	52½	22½		1250	1575	4.71
" 251	AE	25	57.5	17.5		1255	1625	4.68
" SS	SS	40	30	28	( 2% Ni.)	1220	1435	4.76
" 404	SS-5	40	30	25	( 5% Ni.)	1220	1580	4.72
" DT	DT	40	36	24		1235	1415	4.80
" DE	DE	45	30	25		1230	1370	4.82
" ETX	ETX	50	34	16		1250	1425	4.99
" 541	ALLOY-4772	54	40	5	( 1% Ni.)	1340	1575	5.06
" 560	ER	56	22	17	( 5% Sn.)	1145	1205	5.00
" 580	EB	57.5	32.5	—	( 3% Mn.)	1120	1345	5.05
					( 7% Sn.)			
" RT	RT	60	25	15		1245	1325	5.02
" 603	RT-SN	60	30	—	(10% Sn.)	1115	1325	5.23
" 630	RSNI	63	28.5	—	( 6% Sn.)	1275	1475	5.12
					( 2.5% Ni.)			
" EASY	EASY	65	20	15		1235	1325	5.06
" MEDIUM	MEDIUM	70	20	10		1275	1360	5.14
" BT	BT	72	28	—		1435	1435	5.24
" HARD	HARD	75	22	3		1365	1450	5.28
" 752	TR #1	75	—	25		1300	1330	5.06
" IT	IT	80	16	4		1345	1490	5.29
" 852	85 Ag.-15 Mn.	85	—	—	(15% Mn.)	1760	1780	5.08

\*A Solder—Not a Brazing Alloy

Space does not permit listing the many special alloys, formulated for a particular or unique application. Handy & Harman Brazing Engineers and Technical Service are

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You get 10 big Integral-Motor-Pump advantages  
in these two NEW types (three models) of

## GAST AIR PUMPS

### Model 0211

1/6 hp, to 1.3 cfm,  
25 psi or 27" vac.

### Model 0321

1/4 hp, to 2.2 cfm,  
25 psi or 28" vac.

### Model 0521

1/3 hp, to 3.8 cfm,  
20 psi or 28" vac.

\*0321 similar in  
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1. Latest type G.E. "Form G" motors.
2. More compact than other pumps.
3. Total weight reduced 1/3—cuts shipping costs.
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ROTARY**

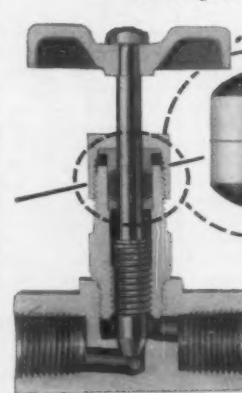
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- COMPRESSORS TO 30 P.S.I.
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"Air may be your answer!"

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"...yet we have **IMPROVED it**"

The Marsh Stainless Steel Needle Valve could  
have gone right on being the finest in its  
field...yet we have improved it



...with *fabulous*  
**"TEFLON"**  
*packing*

Note the "close-up!" The Marsh Marpak packing system, originated in the Marsh Needle Valve, was one of the factors that has enabled it to stand up and work right under pressures up to 10,000 psi.

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**Needle Valve**  
**in 416**

stainless steel throughout  
Now with "Teflon" Packing

MARSH INSTRUMENT CO. Sales Affiliate of Jas. P. Marsh Corp., Dept. G, Skokie, Ill.  
Marsh Instrument and Valve Co. (Canada) Ltd., 8407 103rd St., Edmonton, Alberta  
Houston Branch Plant: 1121 Rothwell St., Sect. 15, Houston, Texas

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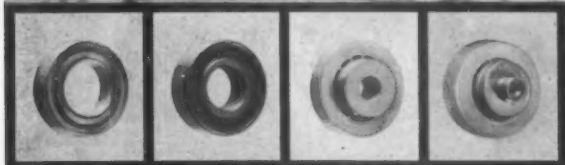
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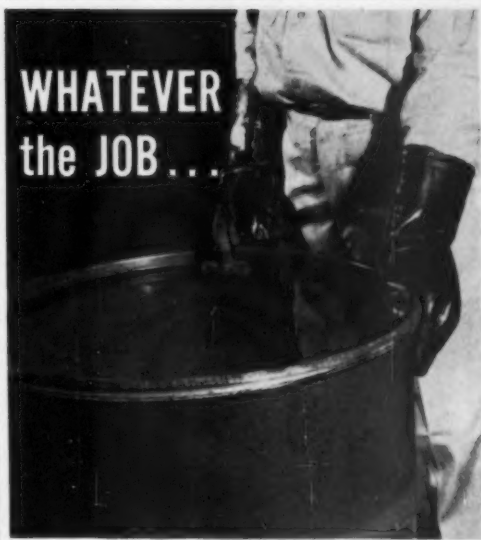


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42 Roselle Street Mineola, New York

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NOVEMBER 24, 1958

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the JOB...**



**There's a**  **Glove that fits it best**

Some work gloves have to resist heat. Some should be acid resistant. Others must be anti-slip. Each job makes certain requirements of a glove. That's why HOOD makes 29 different kinds — in rubber, neoprene and plastic. Among them you'll find one that's best for each job in your plant.

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**No. PV-96**

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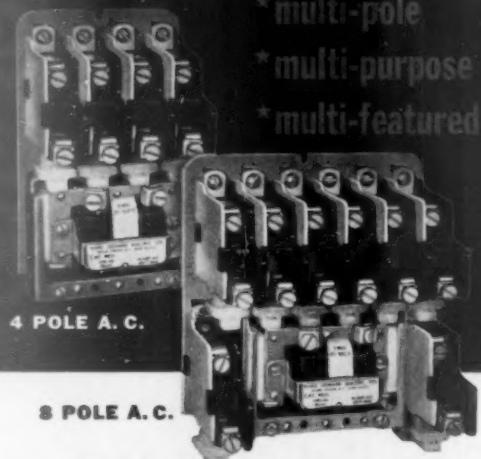
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# new

## HIGH-RELIABILITY RELAYS

- \* multi-pole
- \* multi-purpose
- \* multi-featured



Brand new, Type HR solenoid relays are Result-Engineered to function as the "heart" of any control system. The Type HR is designed as a multi-pole relay for piloting machine and process control components where ultra-long life and hi-speed operation are mandatory.

Wiping action contacts insure high electrical reliability; nylon movable contact carriers and armature guides minimize operating friction.

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Write for Ward Leonard Bulletin 4470. Ward Leonard Electric Co., 50 South Street, Mount Vernon, New York. (In Canada: Ward Leonard of Canada Ltd., Toronto.)

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**CONTACT RATINGS:** A.C.—10 amps., 600 V. max.; D.C.—6 amps., 115 V., 1 amp., 230 V.

**COILS:** A.C. 110, 208-220, 440, or 550 V., 50-60 cps. D.C. for 115 or 230 V. Others on special order.

**POLES:** 2 to 8, in all combinations of N.O. and N.C. Contacts convertible from N.O. to N.C. and vice versa.

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WARD LEONARD ELECTRIC CO.

Result-Engineered Controls Since 1892

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manufacture wire cloth and  
perforated metal

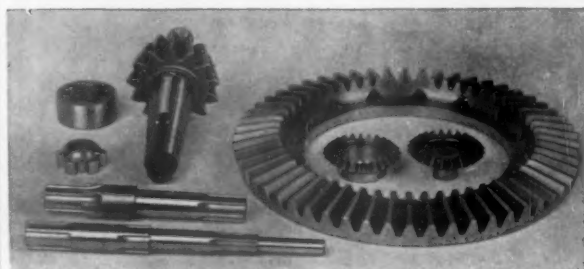
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Send your inquiries to:

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Kalkaska, Michigan

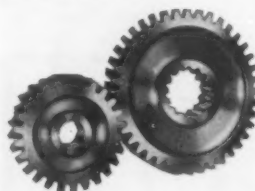
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are made exactly  
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The next time you need gears, be sure to send your inquiries to The Adams Company, 1942 Byer St., Dubuque, Iowa.



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- Sprockets
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- Splined Shafts (Parallel key or Involute)
- Lead & Feed Screws
- Shaved Tooth Gears (Spur or Helical)
- Ground Thread Worms

## The ADAMS Company

Dubuque, Iowa

1883 75 years of progress 1958

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PURCHASING

1959  
36th Edition



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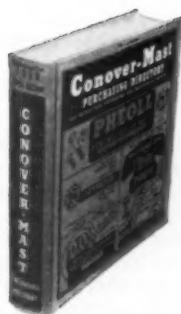


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this size . . .

**2 1/2"**

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- 3** chemicals listed separately with space-saving "key" method.
- 4** company size indicated by average employment — an accurate and current measure.



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# Employment Service

**Experience:** Over 20 years procurement for automotive, aircraft, farm machinery and domestic furnaces. Have supervised purchasing groups, expediting crews, scheduling department and inventory control. Familiar with all phases centralized or individual plant buying.

**Education:** B.A. degree—Economics major.

**Will relocate.**

Write: Box 249.

**Experience:** Fifteen years as purchasing director, purchasing agent & buyer in electronics component mfg.: train personnel, set up policies, procedures & cost reduction programs, purchasing covered capital expense items, raw materials, machined parts, stampings, molded parts, sub assemblies, MRO & others.

**Education:** Business administration.

**Will relocate.**

Write: Box 251.

**Experience:** Thirteen years head of purchasing for institutions, including last 6½ years as purchasing agent for large research and development laboratories and its production activities. Wide general knowledge of material and equipment needed and sources of supply.

**Education:** Higher Accountancy Training, studies in national economy management, commercial business school, administration of records and procedure simplifications courses.

Write: Box 252.

**Experience:** Five years purchasing experience repair, maintenance, operational supplies, assembly components for division of major manufacturer. Previously employed business college instructor.

**Education:** Business college education; Purchasing course, University level; correspondence courses.

**Prefer Illinois or Indiana.**

Write: Box 253.

**Experience:** Twelve years oil field equipment buyer — production and drilling. Experienced store supervisor, administrator, expeditor, inventory control. Some export buying—South America. Also commercial pilot, S.E. land and sea with instrument and flight instructor rate.

**Education:** Business college degree in accounting.

**Will relocate in Midwest or Southwest. Consider South America.**

Write: Box 254.

**Experience:** Two-and-one-half years automotive company. Assisted setting up purchase analysis department, supervisor, also general manager's staff. Division program coordinator. 9 years exp. engineering consultant—Sr. buyer, responsible all phases of purchasing.

**Education:** B.S. degree, major accounting.

**Will relocate.**

Write: Box 255.

**Experience:** Two years in project engineering with aircraft manufacturer. Two years junior chemist with pulp & paper manufacturer. Three years in purchasing & stores with mining and smelting company. Five years purchasing agent and three years personnel manager with forest products manufacturer. All experience in Canada.

**Education:** Two years university—chemical engineering.

**Will relocate.**

Write: Box 256.

**Experience:** Twelve years of diversified purchasing experience with a major oil company. Annual purchases exceed four million dollars including most major commodities with emphasis on pipe and containers. Actively engaged in Value Analysis program.

**Education:** Studied Purchasing and related subjects for four years in night college.

**Will relocate.**

Write: Box 257.

**Experience:** Seventeen years experience as purchasing agent, buyer. Wide knowledge of raw materials, fabricated

**Listings in this department are offered without charge. Both purchasing department personnel interested in changing jobs and employers in search of replacements or additions to their departments may take advantage of this service. When writing, specify whether you want the applicant's form or the employer's form. Address all correspondence to Employment Service Department, PURCHASING Magazine, 205 East 42nd Street, New York 17, New York.**

parts. At present supervising \$25,000,-000 purchasing operation of diversified type materials metals, paper, film, etc.

**Education:** Special courses in business administration and purchasing.

**Will relocate.**

Write: Box 258.

**Experience:** Two years with leading jet aircraft engine co. Purchased such items as molded rubber parts, metal bracket assemblies, small assemblies, all types of gaskets and packings, springs, rings, rivets, fasteners. All types of packaging parts. Experience in production planning, scheduling & value analysis.

**Education:** B.S., business administration.

**Will relocate.**

Write: Box 259.

**Experience:** Ten and a half years as assistant purchasing agent for crude oil producing company. General buying coupled with two years personnel work such as hospitalization and insurance.

**Education:** Oil lab extension course and one year and a half college.

**Will relocate.**

Write: Box 260.

**Experience:** Five and one-half years general purchasing experience including buying, inventory control, scheduling, expediting, liaison, value analysis. Present position supervisor scheduling and inventory control. Annual purchases over 25 million dollars. Heavy experience castings, stampings, electrical components.

**Education:** Liberal Arts 4 years.

**Will relocate.**

Write: Box 261.

**Experience:** Ten years purchasing and purchasing administration experience including formulation and recommendation of policy and procedure, supervision of inventory control section, evaluation of requisitions, approval of vendor invoices, supervision of plant buying offices, and raw material. Purchasing experience includes both process and manufacturing industries.

**Education:** B.B.A., Business management.

**Will relocate.**

Write: Box 263

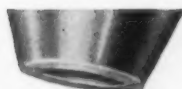
**Experience:** Purchasing Agent—seven years—handling production items, with high volume of building and equipment maintenance buying. Medium size plant, producing packaging materials, located in Midwest. Practical shop experience.

**Education:** B.S. Degree, plus courses in Business Administration.

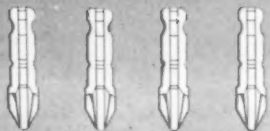
**Will relocate.—Preference for Midwest.**

Write: Box 264

Count on *Continental* for this  
**2-way saving in bit costs**



**You get 4 HY-PRO PHILLIPS Insert Bits**



**for the cost of 1**



**conventional bit**

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HOLDERS**  
made in types  
and sizes to fit  
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**HY-PRO PHILLIPS Insert Bits are FORGED**

Tested and proved to  
**outlast other bits  
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Each bit drove the same number of screws

High strength *forged* HY-PRO Bits are production tested and proved to have an average service life *double* that of the best comparable bits. Many users report even greater margins of extra life for HY-PRO bits, often as high as 4 to 1.



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Precision control with the same Phillips master tools assures uniformly accurate fit of HY-PRO Phillips Bits and HOLTITE Phillips Screw recesses. Use this proved combination for the top efficiency you need in assembly—especially with power and automatic driving equipment—to avoid downtime, rejects, and weak fastenings. For full information, write: Continental Screw Co., 457 Mt. Pleasant St., New Bedford, Mass.

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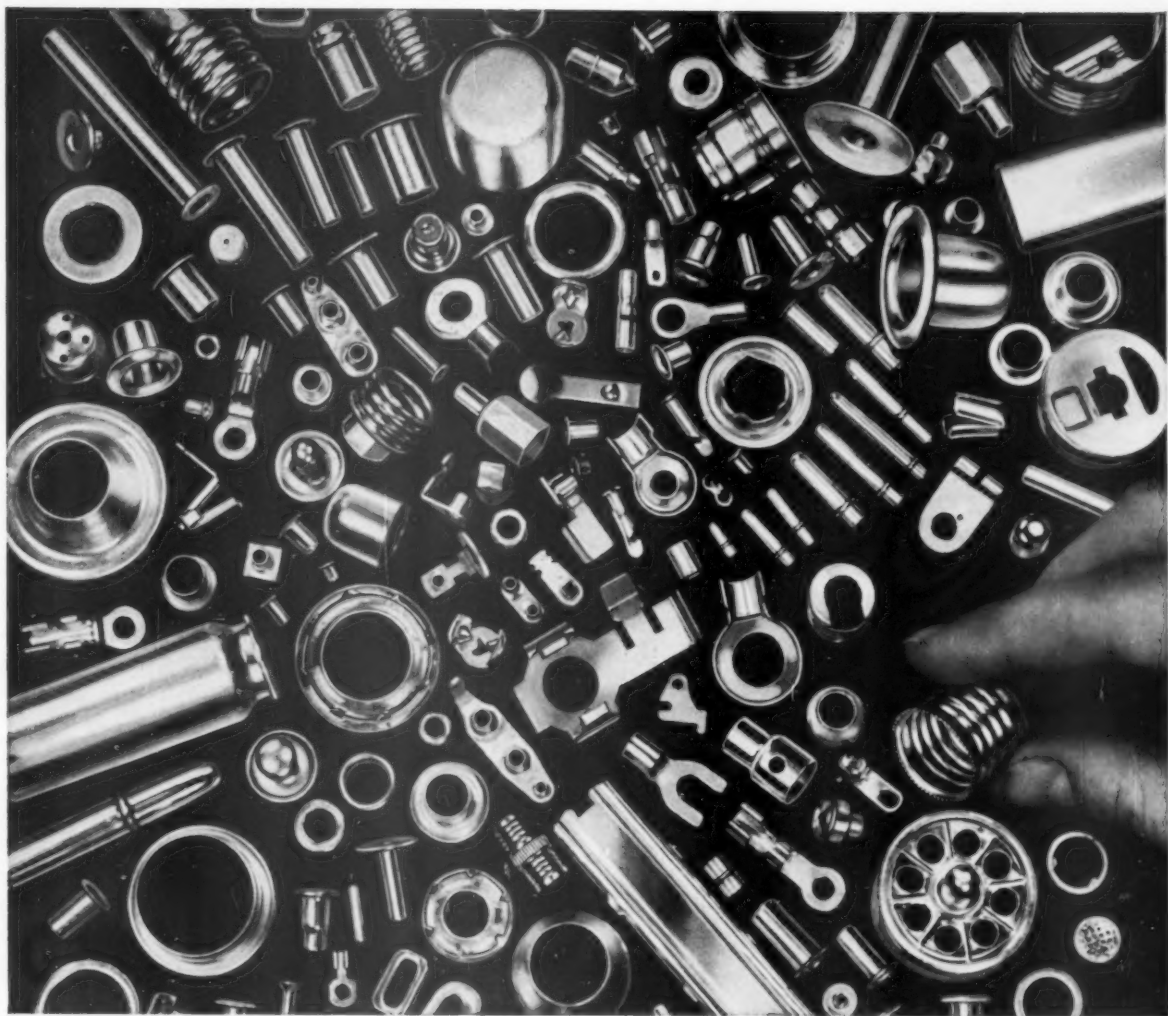


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